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W E E K L Y R E P O R T S

Of The Division Of
WESTERN IRRIGATION AGRICULTURE

(Not for publication without the prior consent of this division.)

Vol. XXXV

January 7 and 14, 1933

No. 1

Huntley

Dry and unseasonably warm weather continued during the week ending January 7. The maximum temperature was 50 and the minimum was 15. The precipitation was .03 inch. There have been several days of high winds, and with no snow protection it is feared that winter grains will be seriously damaged.

Loading of stored beets at local receiving stations was started during the week. There are sufficient beets in storage to keep the local beet factory in operation during most of January. In the four months of operating this factory will have processed about 350,000 tons of beets.

Lamb feeders' day was held at the station on January 7. At the meeting, which was attended by about 200 people, the results of the present year's feeding tests with ten lots of lambs, as well as a summary of the results for the past four years, were presented by Prof. Louis Vinke and Mr. W. F. Dickson of the Animal Husbandry Department of the Montana Agricultural Experiment Station. Following the meeting the various lots of lambs were inspected by the visitors. Much interest was manifested by feeders from various sections of the valley.

It is estimated that about 90,000 lambs are on feed during this season. Of this number the Great Western Sugar Company has out about 50,000 lambs on contract in small lots with beet farmers. These lambs are being fed on a 4-5 spread; that is, they are taken in by the feeder at 4¢ per pound and turned back to the company at 5¢ when they are fat, after a feeding period of from 80 to 100 days.

Dan Hansen.

Summary of the results in fattening lambs for the years 1930 to 1932, indicating the feeding value of barley, hard and soft wheat, corn, and oats when fed with wet beet pulp and alfalfa hay.

1. The lambs fed oats have consistently made the largest total gains and the most rapid gains at the least cost per 100 pounds of gain. That the oat-fed lambs were well finished is evidenced by the fact that the average value of the lambs fed oats was equalled by only one other lot. The oat-fed lambs have returned the greatest average profit, have actually made greater gains at less cost, and were valued equal to lambs fed on corn.
2. Oats and corn have proved to be practically equal in feeding value with oats slightly superior when fed with wet pulp.
3. What little difference there is in the feeding value of soft and hard wheat is in favor of soft wheat.

Huntley (cont'd)

4. While barley-fed lambs gain at about the same rate as the other grain-fed lambs, they have consistently lacked in finish and have received the lowest valuation each year.
5. Oats have produced the cheapest gains, followed by soft wheat, hard wheat, barley, and corn. Corn usually costs more than our home-grown grains, which accounts for the higher cost of gain.
6. Over the three-year period and based upon the quality of the finished lambs, the relative value of each grain ranks as follows: (1) soft wheat, (2) oats, (3) corn, (4) hard wheat, and (5) barley, with very little difference between the soft wheat, corn, and oats.

Summary of the results in fattening lambs with beet by-products, barley, and alfalfa for the years 1929 to 1932.

Where all lots were fed a basal ration of barley and alfalfa hay, the feeding value of beet tops, beet pulp, molasses, and cottonseed cake were compared when fed singly and in combination. The results obtained in these four trials are as follows:

1. The addition of beet tops to the basal ration increased the rate of gain, decreased the cost of gain in all trials, and in two trials increased the returns.
2. Beet pulp added to the barley-alfalfa ration more than paid for itself. Cost of gain was decreased, gains increased, and in all trials the pulp-fed lambs were better finished.
3. An average of the results of these four trials indicates that it paid to add tops to a barley-alfalfa ration, but the returns averaged more when pulp was fed.
4. Cottonseed cake added to a barley-pulp-alfalfa ration increased the gains, the finish, and the value of the lambs in all four trials. In two trials when cottonseed cake sold for \$55 and \$40 a ton, the cost of gains was increased and there was no financial advantage from feeding it. In the last two trials, with cottonseed cake costing \$25 and \$27 a ton, the cost of gains was decreased and the returns were greater than from lambs fed barley, pulp, and alfalfa but no cottonseed cake.
5. In four trials the feeding of molasses has not paid when fed with barley, pulp, cottonseed cake, and alfalfa.

W. F. Dickson,
Dan Hansen.

Newlands

The average maximum temperature for the two-week period ending January 14 was 50.2, with a maximum of 64 on January 9; the average minimum was 12.4, with a minimum of 3 on January 11. The mean temperature was 31.3. The average hourly wind movement was 1.74 miles. There was .08 of an inch of precipitation.

The weather during this period has been warmer than is usual in January. This has made it possible to continue the land-leveling operations, which is about the only field work being done at this station at present. Buildings and machinery are repaired from time to time as the work is needed and the men are available.

Conditions on the project are a little less favorable than they

Newlands (cont'd)

were at the time of the last report. The prices received for the Christmas pool of turkeys were rather disappointing. Most growers, depending entirely on the Christmas market, did not receive enough for their turkeys to pay the cost of the poults and feed during the growing period. Butterfat has dropped to a new low of 17¢.

E. W. Knight.

Prosser

The maximum temperature for the week ending January 7 was 60°, the minimum was 27, and the greatest daily range was 22°. The rainfall amounted to .11 inch.

The reservoirs of the Yakima Valley irrigation system were holding 530,600 acre-feet on January 3 this year. This represents 75 per cent of the holding capacity of the reservoirs. There seems to be little doubt that the reservoirs will be full at the time the irrigation season begins. At the present time there are 80 inches of snow on Snoqualmie Pass of the Cascade Mountains, which has an altitude of more than 4,000 feet.

The report of the water requirement of the Walla Walla Valley has been completed.

Hog prices declined during the past two weeks. Choice hogs 140--155 pounds are \$2.50 to \$2.75. Choice hogs, 160 - 200 pounds, are \$3.25. These prices are to farmers at the farm. The price of beef cattle has remained steady during the past month. Prime steers, 600 to 900 pounds, are \$4.75 per cwt. The price of spring lambs has also been steady and is \$3.50 per cwt. for the 60 to 75-pound class. The price of average large white eggs has dropped 8¢ per dozen, being now 19 to 20¢ per dozen. The price of butterfat on December 28 was reduced 2¢ per pound. On January 1 the price dropped to 18¢ per pound and has remained steady since that time. The price of U. S. No. 1 potatoes is \$8.50 to \$9.50 per ton in sacks, f.o.b. car. U. S. No. 1 baled hay, first cutting, is selling for \$6.00 to \$7.00 per ton f.o.b. car.

The number of cars of produce shipped from the Yakima Valley in 1932 was 40,220, a decline of 9.4 per cent over the previous year. The value of the produce shipped last year amounted to \$17,967,296, a reduction of 34 per cent as compared with 1931. Motor truck shipments were included, being reduced to carloads. The figures were compiled by the Yakima Traffic and Credit Association.

The maximum temperature for the week ending January 14 was 62°, the minimum was 25, and the greatest daily range was 27.

During the week the first copy of the Walla Walla Valley report was finished, and work was continued on the annual report.

Butterfat declined 4¢ per pound during the week and is now 14¢ per pound. Potatoes also declined and are now \$6.50 to \$7.00 for U. S. No. 1's in sacks, f.o.b. car. The price range for U. S. No. 1 potatoes has narrowed to 50¢ per ton, whereas in the past it has been \$1.00 per ton.

Carl A. Larson.

Scotts Bluff

The average maximum temperature for the week ending January 7 was 48°, with a maximum of 52 for three days of the period; the average

Scotts Bluff (cont'd)

minimum was 22, with a minimum of 10. The average wind movement was 13.7 miles per hour. No precipitation was recorded.

The week has been unusually warm for this time of the year. The wind movement has been the greatest for a week that has ever been recorded at the station. For six days in succession the average hourly wind movement varied from 11.2 miles to 23.8 miles.

Yield of the corn plots in Field K

Rotation	Bushels per acre
6	21.7
26	20.5
16	14.5
32	15.1
62	50.0

This is considerably below the average yield, but the quality is very good.

The Pathfinder Irrigation District has completed its crop report, which shows that the cropped acreage for 1932 was 88,642 as compared with 90,427 for the previous year. The crop value for 1932 was \$1,143,213.50, which was \$486,000 less than for the year before. The crop value this year is the lowest it has been since 1914, when the cropped area was only 60,000 acres. Sugar beets with an acreage of 11,135 yielded 157,126 tons having a total value of \$628,504 and an average per acre value of \$56.44. This was the highest per acre value of any crop. The 10,660 acres in potatoes produced 1,164,818 bushels, with an average per acre value of \$10.66. On the 19,098 acres in alfalfa 36,813 tons of hay were harvested, having a per acre value of \$9.63. From 3,648 acres in oats 140,456 bushels were threshed, with an average per acre value of \$5.00. The 20,389 acres in corn produced 423,543 bushels, with an average per acre value of \$3.95.

At a meeting of the National Beet Growers' Association, held at Greeley, Colorado, during the week, Chas. M. Kearney of Morrill was elected president of the association to succeed Fred A. Cummings, Congressman-elect from Colorado. Mr. Kearney expects to spend some time in Washington for the beet growers during the next month.

The average maximum temperature for the week ending January 14 was 45°, with a maximum of 56; the average minimum was 18, with a minimum of 5. The wind movement has averaged 10.6 miles per hour. During the first half of the month the average wind movement has been 12.1 miles per hour—an unusually long period of winds. During the past week there were two small snow flurries, but not enough to measure any precipitation.

According to reports from the mountain areas in the North Platte watershed, there is a shortage of snow at this time. It has been extremely dry throughout this section. In the wheat-growing sections there is reported to be a heavy percentage of winter-killing.

Marketing of fat lambs from the valley is commencing, and the early shippers have had a very favorable market. Last week from \$5.85 to \$6.00 was received, which marks the highest point for lambs this winter. At this figure the feeders have made some profit, as most of them bought their lambs around \$4.00. Hogs made a slight advance and

Scotts Bluff (cont'd)

the tops were quoted at \$2.90 at Omaha at the end of the week.

Eggs have dropped to 19¢ per dozen and butterfat is now down to 13¢, the lowest it has ever been in the valley. It is dangerously close to the cost of production. The station herd during the past year has produced butterfat at a feed cost of 11¢ per pound. As an offset to this, feed is the lowest it has ever been, the grain mixture used in the station dairy herd costing only 58¢ per hundred pounds. Potatoes have increased some in price and a few loads have been sold in the valley at 50¢, most of them however bring 42¢. There is some demand for seed potatoes at 60¢ and certified seed is being offered at \$1.00. The certified seed practically all goes south and must move within the next month.

James A. Holden.

M I S C E L L A N E O U S

Mr. Geo. T. Ratliffe, of the San Antonio (Texas) Field Station, and Mr. H. K. Dean, Superintendent of the Umatilla Field Station at Hermiston, Oregon, are now in Washington for the purpose of preparing reports on the experimental work conducted at their respective stations.

WEEKLY REPORTS

Of The Division Of
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January 21 and 28, 1933

No. 2

Huntley:

The maximum temperature during the week ending January 21 was 29 and the minimum was -26. The precipitation was .38 inch. A snowfall of about 10 inches, the heaviest of the season, occurred during the week. Subzero temperatures prevailed on several days. The snow will stop soil drifting, which was becoming rather serious on fallow lands and in winter wheat fields.

Loading of sugar beets at local receiving stations was completed during the week. The sugar run at the Billings factory will be completed by January 28. This is one of the longest runs that the factory has ever made and when finished about 125 million pounds of sugar will have been manufactured from a total of slightly more than 400,000 tons of beets. The average yield of beets for the territory was 14.93 tons per acre, which was nearly 2 tons per acre higher than any previous average. The initial payment for the crop, which was at the rate of \$4.50 per ton, was \$1,806,786. Additional payments may be made as the sugar is marketed, depending on the selling price of sugar.

About 100,000 lambs were on feed in the valley during the winter, and they are rapidly being sent to market. Lambs that were fed on contract are being turned in at \$5.00 per cwt., while those owned by feeders are bringing \$4.25 and \$4.50 locally. The lambs from the experimental lots at the station were sold at \$4.50 to a local dealer and were shipped on January 13. The average weight of these lambs when shipped was 105 pounds.

Station employees have been engaged in storing ice and hauling coal.

Dan Hansen.

Newlands

The average maximum temperature for the week ending January 21 was 31°, with a maximum of 36 on January 15; the average minimum was 10.3, with a minimum of -5 on the 18th. The mean temperature was 20.6. The average hourly wind movement was 3.07 miles. There was .83 of an inch of precipitation.

A snow starting on the night of January 14 continued more or less steadily until January 19. There was a total fall of 9½ inches. Only two other storm periods during 27 years of weather observations at this station have brought a greater fall of snow. These snows occurred in January 1916 when 20.9 inches fell and in January 1910 when it was 10.5 inches deep. Up to January 14 few storms had occurred in the mountains to assure much water for irrigation purposes next summer. However, this record snowstorm has changed the entire outlook. In the mountains the snow is some 6 feet deep and the storm has not yet ended.

Newlands (cont'd)

This snowstorm was followed by below zero temperatures, and all work in the field is at a standstill. The leveling operations had to be abandoned and the men laid off. As soon as the soil can be worked it is planned to employ extra help in order that the work may be finished in time for spring planting.

E. W. Knight.

Prosser

The maximum temperature for the week ending January 21 was 39°, the minimum was 4, and the greatest daily range was 33. The snowfall amounted to 2.7 inches during the week. This was the first snow of the winter that remained on the ground any length of time.

The price of eggs is now 15 and 16 cents per dozen. U. S. No. 1 potatoes declined 50 cents in price and are now \$6.00 to \$7.00 per ton in sacks f.o.b. car. Hog prices, at the farm, increased from \$2.50 and \$2.75 to \$2.90 and \$3.00 for the 145-160 pound class. The 160-200 pound hogs will bring \$3.50 per cwt.

The maximum temperature for the week ending January 28 was 46°, the minimum was 17, and the greatest daily range was 22. The precipitation, which was in the form of snow, amounted to .14 inch. The supply of snow in the mountains indicates that there will be sufficient irrigation water for next season.

The lambs that were fed on contract at the station this winter were shipped during the week. These lambs were sold for 5 cents a pound, which is a little above the average market price.

Markets: Hogs declined 5½ cents per pound. Eggs are now 13 and 14 cents per dozen. The price of baled alfalfa hay has been constant for several months, but during the week it declined 25 cents per ton and is now \$5.75 to \$6.75 per ton for U. S. No. 1 first cutting, baled hay, f.o.b. car. The price of butterfat is now 15 cents per pound.

Carl A. Larson.

Scotts Bluff

The average maximum temperature for the week ending January 21 was 42°, with a maximum of 53; the average minimum was 14, with a minimum of 9. The wind movement was 6.9 miles per hour. No precipitation was recorded.

During the week work was started on the drilling of another well at the station. One of the old wells has been abandoned for about a year, and the other has not been furnishing a satisfactory supply of water.

The weather during the month has been very mild, and farmers have begun spring work such as fertilizing fields and disking land. Little has been done at the station other than routine work.

The price of lambs has held steady the past week, and a number of feeders have sorted out and shipped their best lambs, receiving top prices, which have been around \$5.75 all week. The prices for hogs have held steady. However, most of the hogs from this section sell on the local auction market, which as a rule pays a little more than the river markets, freight considered.

Scotts Bluff (cont'd)

The price of eggs dropped from 19 cents to 13 cents per dozen during the week, with prospects for a further decline. Butterfat remains at 13 cents per pound. There is little demand for hay, and those growers who were holding for higher prices are now offering to sell.

The average maximum temperature for the week ending January 28 was 45°; with a maximum of 50; the average minimum was 14, with a minimum of 7. The average wind movement was 9.5 miles per hour. No precipitation was recorded.

The well drillers completed their work at the station at the end of the week. It was necessary to put down two holes. The first one was dry at a depth of 127 feet, but a plentiful supply of water was reached in the other at a depth of 87 feet.

The shipment of lambs out of the valley has been rather heavy due to the better price within the last week or two. One shipper in the valley received \$6.45 per hundred on the Omaha market, which was the highest price paid at that market since July 1932. The heavy receipts at all markets have reduced prices, which were lower at the end of the week.

Butterfat has dropped to 11 cents per pound, which means that in most cases it is being produced at a loss, considering only feed cost. Eggs have dropped to 7 cents a dozen. This was the lowest price reached last year, but it came about 6 weeks later than this year.

A summary of production of the dairy herd for the past year shows that of the 11 head four produced 400 pounds or more of butterfat and eight of them produced more than 350 pounds each. The average cost of butterfat for the year was 12.2 cents per pound; the average selling price was 17.5 cents per pound. The average production of the herd was 10,380 pounds of milk and 366.5 pounds of butterfat--an average test of 3.53 per cent. Two lots were alternated from roughage to roughage and grain on April 1, so that there are but nine months in the comparison between lots during the year. Lot 1, getting a grain supplement, produced butterfat at a cost of 12.1 cents per pound; and lot 2, fed roughage only, produced butterfat at a cost of 10.2 cents a pound. The average production for lot 1 (for 9 months only) was 8,769 pounds of milk and 309.8 pounds of butterfat, and for lot 2 it was 6,954 pounds of milk and 247.3 pounds of butterfat.

James A. Holden.

Yuma

The weather during the week ending January 21 was rather unusual for southern California. Only two days were clear and there was rain on four days totaling 1.01 inch. On the 18th hail fell, which is very rare for this section. There was not enough to injure any crop, however. The cloudiness caused cooler weather to prevail. The mean maximum was 60 compared to 70.1 for the preceding week. The mean minimum for the week was 36.7. There was frost on the ground five days of the seven. However, the absolute minimum was only 33 in the weather station shelter. A minimum thermometer placed one foot from the ground recorded an absolute minimum of 28.

The meteorological equipment was moved from the location on A-10-8 to the east end of B-18. The growing of trees of one kind or

Yuma (cont'd)

another on all four sides, even though they were some distance away, was interfering with the results, especially the wind. The evaporation tank had to be replaced, which gave an opportunity to move the equipment to a point more comparable to the conditions on the rotation experiment.

Station work during the week consisted of general cleaning up of the tool house, moving the meteorological equipment, and trimming dates on the north side of the station.

Maximum, minimum, and average yields of Pima seed cotton in the irrigated rotations from 1923 to 1932, inclusive.

	1923:	1924:	1925:	1926:	1927:	1928:	1929:	1930:	1931:	1932:	10-year average
Maximum:	1,252:	2,136:	2,680:	2,758:	2,026:	2,160:	2,410:	2,544:	1,730:	2,008:	1,936
Minimum:	420:	280:	852:	1,044:	664:	688:	696:	612:	474:	310:	680
Average:	797:	904:	1,514:	1,780:	1,233:	1,548:	1,509:	1,787:	1,143:	1,163:	1,440

Max E. Crannell.

WEEKLY REPORTS

Of The Division Of
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February 4 and 11, 1933

No. 3

Huntley

During the week ending February 11 the maximum temperature was 35 and the minimum —47. The precipitation was 0.61 inch. The minimum temperature was the record low since the station was established in 1910.

During the past month severe winter conditions have prevailed. Since January 16 there have been 20 days on which the minimum temperature reached zero or below zero. There have been frequent light snowfalls and the present covering is about 9 inches in depth. The recent storm was especially severe, resulting in damage and loss to range stock and serious interference to traffic. Snowfall in the mountain sections is reported as especially heavy and should insure a good water supply for next summer.

In 1932 record yields were obtained of the cultivated crops in the maximum production rotation. Yields of grains, particularly oats, were low due to lodging which resulted from unfavorable weather conditions when the grains were maturing. Beets gave a yield of 26.95 tons per acre, corn yielded 89.6 bushels, potatoes 563.3 bushels, and beans 53.7 bushels. In this rotation full use is made of alfalfa, manure, and for two of the crops commercial fertilizer -- phosphate and ammonium sulphate -- are applied. Manure is applied to all cultivated crops and alfalfa. A crop sequence that has been found to result in high yields in the regular rotation experiments and in other cropping work is followed in this rotation. The following table gives the acre yields in the maximum production rotation experiment from 1926 to 1932, inclusive.

Crop	: Unit:	: 1926	: 1927	: 1928	: 1929	: 1930	: 1931	: 1932	: Average
	: of :								
	: yield:								
Alfalfa 1:	Tons:	3.70:	--	--	3.83:	3.22:	3.76:	3.56:	3.61
Alfalfa 2:	"	--	5.67:	--	*	6.90:	8.14:	7.19:	6.97
Alfalfa 3:	"	--	--	5.88:	5.92:	6.12:	7.54:	7.40:	6.57
Corn	: Bus.:	72.5	: 65.7	: 69.2	: 60.4	: 60.0	: 82.2	: 89.6	: 71.4
Potatoes	: "	: 490.6	: 560.0	: 492.6	: 563.7	: 336.0	: 368.0	: 563.3	: 510.6
Oats	: "	: 92.5	: 121.2	: 136.3	: 128.7	: 121.6	: 53.7	: 80.0	: 104.9
Beets	: Tons:	22.34:	22.00:	22.00:	19.96:	24.51:	19.96:	26.95:	22.53
Wheat	: Bus.:	--	: --	: 65.3	: 58.0	: 76.6	: 24.4	: 62.7	: 57.4
Beans	: "	--	: --	: 48.3	: 48.9	: 42.7	: 39.7	: 53.7	: 46.7

*Second year alfalfa seeded previous year with nurse crop of oats -- yields not used in obtaining average.

Dan Hansen.

Newlands

The average maximum temperature for the week ending February 4 was 31.9, with a maximum of 39 on January 23; the average minimum was 1.9, with a minimum of -4 on January 22, February 2, and 3. The mean temperature was 16.9. The average hourly wind movement was 3.13 miles. There was .31 of an inch of precipitation.

The continued cold weather has made field work exceptionally difficult. About 4 inches of the snow that came during the middle of January still remains on the ground. The subzero temperatures at night and the maximum temperatures during the day of 22 or 23° have kept the ground frozen. Some work can be done where dirt hauling is being made from a sand hill.

Drastic steps are being taken by the Irrigation District officials to reduce expenditures and the proposed budget for the coming year. The following tabulation of the operation and maintenance costs during recent years shows how drastically expenditures are being reduced:

1929	\$140,136	1932	\$79,936
1930	108,797	1933	60,014 (proposed)
1931	108,219		

If the cost of operating and maintaining the project irrigation system can be kept within the proposed budget of \$60,014 this year, there will be a saving of 57 per cent as compared with 1929. The 1933 figure does not include court costs for water suits or any pumping operations that may be needed to supply water to the bench lands of the project if there should be a water shortage on those lands. There is at present some 13½ feet of snow on the Sierra watershed and about 104,000 acre-feet of water in the Lahontan Dam.

E. W. Knight.

Prosser

The maximum temperature for the week ending February 4 was 45°, the minimum was 20, and the greatest daily range was 21.

The orchardists in the Yakima Valley have been hit hard financially by the low prices for fruit during the last two years. It will be very difficult, if not impossible, for the growers to obtain financial assistance to produce a crop the coming season. During the past week a Horticultural School, conducted by the Extension Service, was held in different parts of Benton County. The question of greatest interest was methods of financing instead of production problems. A large number of the orchardists desired information concerning a spray that would knock off the fruit and yet not damage the trees. If this could be accomplished, the orchardists could save the cost of spraying during the coming season. However, at the present time such a spray is not known.

The only notable change in market prices was eggs, which declined 5 cents per dozen and are now quoted at 8 and 10 cents per dozen for average large whites.

The maximum temperature for the week ending February 11 was 43°, the minimum was 8 below zero, and the greatest daily range was 23. On February 11 there was 0.6 of an inch of snow on the ground.

The price range for U. S. No. 1, first cutting, alfalfa hay has

Prosser

narrowed to 75 cents. The price now is \$6.00 to \$6.75 per ton for baled hay f.o.b. car.

The railroad freight rate on apples has been reduced $12\frac{1}{2}$ cents per box during the week. The rate per box of apples from the Yakima Valley to New York is $62\frac{1}{2}$ cents, which does not include the cost of icing or heating the cars. The top price for extra fancy Winesap apples was 80 cents per box, but generally the price range has been from 70 to 80 cents per box. Top prices for extra fancy Delicious were 85 cents per box. Attempts are being made by the shippers to give the grower the benefit of the reduced freight rate. Shipments of apples for the week ending February 9, 1932, amounted to 418 carloads and for the corresponding period this year 206 carloads were shipped.

Carl A. Larson.

Scotts Bluff

The average maximum temperature for the two-week period ending February 11 was 26, with a maximum of 55; the average minimum was 3 below zero, with a minimum of — 23. The average wind movement was 11.2 miles per hour.

This period has been another record breaker for weather conditions. For three days in succession the thermometer registered 28, 25, and 24° below zero. The lowest temperature ever before recorded in February at this station was —23. For eight days in succession the minimum temperature was zero or below, and no relief from the cold wave was indicated at the end of the period. No moisture was recorded as a result of the one or two snow flurries.

The soil is almost too dry to freeze, and the winter wheat crop in this section is a total failure. The high winds which have prevailed throughout January and February, the complete absence of snow, and the low temperatures have destroyed practically all of it.

The movement of lambs to market from this section has been rather heavy. During January of this year 357 cars were shipped as compared with 331 last year and 241 the year before. Profitable prices have been obtained for most of those going from this section. Hog prices have increased a little. Butterfat is steady at 11 cents per pound. Eggs broke to \$1.75 a case but since the cold wave have recovered to \$3.60 a case. All feed-stuffs are losing slowly and are at the lowest point ever known in the Valley. A good balanced dairy ration from home-grown feeds can be mixed for 53 cents per 100 pounds.

Only routine work has been carried on at the station during this period.

James A. Holden.

M I S C E L L A N E O U S

Mr. H. K. Dean left Washington on February 10 for his station at Hermiston, Oregon.

W E E K L Y R E P O R T S

Of the Division Of
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February 18 and 25, 1933

No. 4

Belle Fourche

Lamb Feeders' Day was held on February 15 with an attendance of about 80. A detailed report on the lamb-feeding experiment will be submitted later.

The West River Farm Institute was held at Belle Fourche on February 25, at which time the results of the lamb-feeding experiment at the station were reported. Mr. A. L. Baker, of the U. S. Ardmore Experiment Farm, discussed the problem of beef cattle feeding and enumerated the results obtained through experiments conducted at Ardmore and in Montana.

Yields of oats in the irrigated rotations in 1932

	Bushels per acre
Maximum	97.5
Minimum	32.5
Average	71.6

Beyer Aune.

Huntley

The maximum temperature during the two-week period ending February 25 was 44 and the minimum was -26. There was a trace of precipitation.

During the first week of this period the weather continued cold and there were several days of high winds when roads were drifted with snow and almost impassable. On February 20 a thaw began and continued during the week, so that now most of the snow is gone. There has been very little run-off and fields have benefited by the added moisture.

Lambing is under way on the project, and there have been some rather serious losses of lambs dropped during the cold weather.

Most of the lambs that have been on feed during the winter have been marketed. It is reported that rather heavy losses have been sustained by the local sugar company on lambs that were placed on farms on a 4¢-5¢ spread contract, as these lambs brought only from 4¢ to 4½¢ when marketed.

During this period a series of farm meetings were held locally by county agents and extension workers from the Montana State College. These meetings dealt with production and marketing problems.

Station activities included only the routine work of caring for stock and hauling coal.

Dan Hansen.

Newlands

The average maximum temperature for the two-week period ending February 18 was 30.9, with a maximum of 42 on February 8; the average minimum was 64, with a minimum of -19 on February 10. The mean temperature was 15.77. The average hourly wind movement was 2.42 miles. There was .05 of an inch of precipitation. A temperature of 19° below zero on the morning of February 10 established a new all-time minimum temperature for the month of February.

There has not been much change in agricultural conditions and prices being paid for farm products during February. Beef is listed on the San Francisco market at 5 cents, hogs at 4 cents, and lambs at 5½ cents a pound. Generally the San Francisco market sets the price paid locally for such products. A deduction is made for freight, the farmer receiving the coast prices minus the freight.

The twelve banks of the Wingfield organization still remain closed. So far the State legislature has not enacted the measures necessary to enable the banks to reopen as a chain bank system with the depositors in charge. Fallon as well as other Nevada towns is handicapped without banking facilities.

The work at the station is still greatly retarded by the continued cold weather. Generally at this time of the year some of the shade and fruit trees have commenced to blossom. The spring seeding will probably be delayed this year. It is impossible to plow or do much preparation of the fields for seeding. Some land leveling operations have continued as only a few days have been so disagreeable as to prevent work with tractor and teams.

E. W. Knight

Prosser

The maximum temperature for the week ending February 18 was 48, the minimum was -5, and the greatest daily range was 32°. Precipitation, in the form of snow, amounted to 0.43 inch. At the end of the week 3.4 inches of snow was on the ground.

The price of hogs increased 50 cents per cwt. during the week. The price of butterfat advanced 1 cent and is now 16 cents a pound. The price of alfalfa hay advanced 75 cents per ton and is now \$6.50 to \$7.50 per ton for No. 1 baled hay f.o.b. car.

The maximum temperature for the week ending February 25 was 55, the minimum was 26, and the greatest daily range was 22°. Rainfall amounted to 0.19 inch.

The frost has gone out of the ground and some of the farmers are beginning to work their land.

The price is now \$7.00 to \$7.50 per ton for No. 1 baled hay, f.o.b. car. Shipments of apples from the Yakima Valley increased by 36 cars over the shipments of last week. Top grades of Delicious and Winesaps have returned 90 cents and 85 cents per box, respectively.

Carl A. Larson.

Scotts Bluff

The average maximum temperature for the week ending February 18 was 39, with a maximum of 49; the average minimum was 9, with a minimum of -3°. The wind movement during the period has averaged 10.8 miles per hour. No precipitation was recorded at the station.

This week the refilling of the silos was begun. No farm work has as yet been commenced at the station, but on some farms disking has started. With the high winds that have prevailed during the last two months it is doubtful whether disking is advisable as what little moisture is in the soil is given a better opportunity to escape by loosening the soil.

According to a report made by S. K. Warrick, Secretary of the Lamb Feeders' Association, about 280,000 lambs are left in the feed-lots in the valley. The total number of lambs in feed lots was 434,000. The shipments this winter have been much heavier than last year and since January 1 have averaged 86 cars per week.

Dairy and poultry products have gained a little in price during the week, butterfat increasing to 12 cents a pound and eggs to 11 cents a dozen. At the end of the week the top price at Omaha for hogs was \$3.30. The station marketed a truck-load of 295-pound hogs at the local auction company for \$2.75 per hundred, which was only 25 cents under the Omaha top for that weight-class. Lambs are still selling at a price that will allow a small margin to the careful feeder.

The average maximum temperature for the week ending February 25 was 50, with a maximum of 61; the average minimum was 17, with a minimum of 6. The average wind movement was 15.1 miles per hour.

During the week the wind movement has been unusually heavy and considerable damage has been done in the lighter soil areas where the sand has drifted badly. In the western part of the project in Wyoming the damage from drifting sand was worse than in the Nebraska section.

During the week a call was made for a meeting at Scottsbluff of the various beet-growing associations to formulate a uniform contract to present to the sugar companies. Due to weather conditions only representatives from the Nebraska and Colorado associations were present, and no action was taken.

A. N. Mathers, of Gering, and C. M. Kearney, of Morrill, President of the National Beet Growers' Association, have been in Washington during the week attending the hearings on the sugar tariff.

At the station only the routine work has been carried on. Some work has commenced on the farms in the valley. A little plowing has been done, but the heavy winds have delayed much of the work that is usually under way at this time.

There has been little change in the prices of farm products since the last report.

James A. Holden.

Yuma

The maximum temperature for the three-week period ending February 11 was 68, minimum 24, and greatest daily range 40. The precipitation was 0.30 inch. The general storm which produced 0.07 inch of rain on January 24 and 0.23 inch on January 30 was not accompanied by extremely cold weather, although all the mountains to the west and

Yuma (cont'd)

north were covered with snow. The minimum temperature during the storm was 29. The cold winds which started blowing on February 7 produced a minimum of 24 on the 9th. It was reported that citrus in the Imperial Valley was damaged by the cold weather. Only the more tender plants at the station were injured. The early growth of alfalfa on the project was damaged and will have to be clipped.

Farming activities on the project are concerned chiefly with problems of financing for the 1933 season. The two large cotton finance companies which operated all the gins and controlled most of the acreage in 1932 have already signed up the better lands for short staple cotton this coming season. The Farm Bureau and the Extension Service of the University of Arizona have been trying to interest Yuma Valley farmers in growing Pima cotton. It now seems probable that about 500 acres of this variety will be planted provided financing and ginning arrangements can be made.

Most of the applications made by project farmers to the Federal Government for feeder or livestock loans have been granted. Those who applied for crop or general farming loans in most cases have been refused. A large number of requests for the new Federal crop mortgage loans have been made. This money is needed in advance of the 1933 crop season to pay up delinquent construction or operation and maintenance charges.

Station work during the period has included the disking, plowing, and leveling of plots to be planted to cotton; plowing and shoveling ditches, pruning date palms, hauling manure, general irrigating and cultivating.

E. G. Noble.

W E E K L Y R E P O R T S

Of The Division Of
WESTERN IRRIGATION AGRICULTURE

(Not for publication without the prior consent of this division.)

Vol. XXXV

March 4 and 11, 1933

No. 5

Huntley

The maximum temperature recorded during the week ending March 11 was 58 and the minimum 11. The precipitation was .04 inch.

Following several days of mild weather the snow has disappeared and fields are drying. While no field work has been possible yet, it should begin within a few days if present conditions continue.

The contract offered by the local sugar company for beets is substantially the same as in 1932. Under this contract, growers have already been paid \$4.50 per ton for beets with the prospect of an additional payment when the sugar from the 1932 crop has all been marketed. It is expected that the maximum acreage of beets that can be processed by the local factory will be contracted for in 1933. About 30,000 acres were grown in 1932, and this acreage will probably be grown again in 1933.

It appears that there will be a carry-over of alfalfa hay from last year's crop. Hay is being offered at \$4.00 per ton, but there are few buyers.

Present prices of farm products are as follows: Hogs, \$2.50 cwt.; butterfat, 12 cents a pound; eggs, 10 cents a dozen; wheat, 26 cents a bushel; and Great Northern beans, \$1.05 cwt.

Dan Hansen.

Newlands

The average maximum temperature for the two-week period ending March 4 was 50.7, with a maximum of 63 on February 28; the average minimum was 20.8, with a minimum of 11 on February 20. The mean temperature was 35.8. The average hourly wind movement was 2.98 miles. There was a trace of precipitation.

The weather has moderated enough to allow field work to be undertaken. Extra help and teams have been employed in an endeavor to get the leveling operations, plowing, and plot treatments finished in time to allow planting during the first part of April. Even with extra help the seeding of grain this year will be a month later than last year. The continued cold weather in February was most unusual. Plowing was prohibited by the deeply frozen ground. Most of the grain to be planted will be barley that will be used as a nurse crop for either alfalfa or sweet clover. The present plans call for some 40 acres to be seeded to these two crops. This is the largest spring planting program ever undertaken at this station.

During this period the orchard has been given a dormant spray for scale and red spider. The elm shade trees also have been sprayed for scale.

Butterfat is selling at 20 cents and eggs at 13 cents a dozen.

E. W. Knight.

Prosser

The maximum temperature for the week ending March 4 was 55, the minimum was 24, and the greatest daily range was 24°. The rainfall amounted to 0.27 inch.

The Bureau of Reclamation plans to divert water to the Sunnyside Canal on March 10.

No. 1 baled hay advanced during the week and is now \$7.50 to \$8.00 per ton f.o.b. car.

The maximum temperature for the week ending March 11 was 55, the minimum was 20, and the greatest daily range was 28. The rainfall amounted to 0.1 inch.

Wheat was seeded to the five irrigation plots on field E-9. Other farm work consisted of burning weeds along irrigation ditches and flumes and hauling manure.

During the week several farm commodities increased in price.

Carl A. Larson.

Scotts Bluff

The average maximum temperature for the week ending March 4 was 54°, with a maximum of 65; the average minimum was 18, with a minimum of 2°. The precipitation, the first this year, amounted to 0.45 inch. The wind movement averaged 12.2 miles per hour.

The month of February was unusually cold and windy. The average minimum temperature was 6°, the lowest with one exception that has ever been recorded at the station. The average wind movement was also the highest recorded--12 miles per hour--for the month of February.

Some work was done during the week in cleaning out corrals and fertilizing. The hot house was also cleaned out and is being prepared for starting the plants for the spring garden work.

At the end of the week there was a severe blizzard, which drifted badly and which will halt traffic except on the main roads for several days. There was probably from 4 to 6 inches of snow, but it will be of little benefit to the soil as the fields in most cases were bare after the wind had stopped. The blizzard was preceded by a rain which furnished the greater part of the measured precipitation.

The centralized creameries have reduced the price of butterfat to 10 cents a pound, and produce merchants have reduced the price of eggs. Whether this will have any effect on the local market is not known as yet.

The average maximum temperature for the week ending March 11 was 50, with a maximum of 68; the average minimum was 20, with a minimum of 4. The average wind movement was 8.7 miles per hour. There was about an inch of snow during the week but not enough moisture in it to measure.

The frost is practically out of the ground and farm work in the valley has been started. At the station one man has been employed who is fertilizing the various plots. No other work at the station has been started.

Lambs gained about 15 cents during the week. Lambs from the valley are being marketed as rapidly as they are finished, but there is no disposition to flood the market as was the case some time ago.

Butterfat has increased to 13 cents, but eggs are back at 7 cents a dozen.

James A. Holden.

Umatilla

During the week ending February 25 the maximum temperature was 55 and the minimum was 32. No precipitation was recorded. There were severe winds on three days. Snow which had been on the ground for 11 days disappeared rapidly during a Chinook wind.

Only one station laborer has been employed during the winter months. Besides routine work he has been erecting fences on the new station. Approximately seven-eighths of a mile of fence has been finished and posts set for most of the remaining outside fence. A 40-inch woven-wire fence with steel posts and one barb on top is being installed.

A preliminary survey on the project indicates that a considerable portion of the alfalfa has been winterkilled by temperatures of -11 in December and -7 in February, both without snow covering to protect the plants. Soil surface temperatures of 2° above zero were recorded. On the station all of the alfalfa and rye seeded during September and October and a fourth to a third of the alfalfa seeded last spring has been killed. Fortunately the spring-seeded stands were exceptionally good so that the loss is not great enough to necessitate reseeding. One three year old field examined on the project had 70 per cent and another planted last spring had 55 per cent killed. It is reported that 100 per cent has been killed in some of the old fields. When the plants have started growth a stand count will be made of the 6-year old variety test on the old station. The results will be reported later. There was practically no killing of sweet clover in the pasture except in that portion which has been used for turkey lots during the fall and winter. Here all of the plants were killed.

During the week ending March 4 the maximum temperature was 60 and the minimum was 26. The precipitation was 0.18 inch.

The excavation was made for the supplemental pump to be installed on the feed canal to pick up spring water, and forms for the concrete work were built.

Barley was seeded on that portion of the proposed rotation tract which was seeded last fall to rye which had been killed. By the use of barley for the uniform crop it will be possible to screen out at harvest time the small amount of rye which lived through. The rye, which had been planted to protect the land from blowing, was seeded over a period of two months; so that it would not have been possible to use it as the uniform crop. Thus, by the winterkilling of the rye, a year will be saved in starting the rotation work. The alfalfa seeded last fall was reseeded and work was started reseeding the rye on the undeveloped portion of the station.

Grading was resumed on the last ten acres of the rotation field.

H. K. Dean.

Yuma

The week ending March 4 was a normal one for this time of the year. The maximum temperature was 85, mean maximum 78.3, minimum 37, mean minimum 41.3; greatest daily range 45. The average wind velocity on March 4 was 6.9 miles per hour.

The first cotton planting this year on the station was made the last of the week. The high wind on the 4th together with low humidity made the ground ~~so~~ dry that the cotton will probably have to be re-

Yuma (cont'd)

planted to obtain a good stand. This is not so serious as there is time to replant.

The last of the 1932-33 cotton crop in the Yuma Valley was ginned this week. There was a total of 8,500 bales, the lowest production since 1917. The low prices of cotton and the small amount of money that could be borrowed were the principal reasons for the small crop. It has been estimated that about 33 per cent of the cultivated valley acreage will be in cotton this coming season. Judging from the yields obtained in the past there will be about 15,000 bales for the season 1933-34.

Number of bales of cotton ginned from 1928 to 1933

1928	18,170	1931	29,811
1929	30,045	1932	14,894
1930	31,976	1933	8,500

Work during the week consisted of trimming date palms, preparing ground for cotton, ginning cotton, cultivating sugar beets, removing water tank from tower, and general irrigating.

For the week ending March 11 the maximum temperature was 87, mean maximum 83, minimum 40, mean minimum 44, and the greatest daily range 46. The relative humidity has been high for the last part of the week. Three days were cloudy and one partly cloudy. With a very low wind movement the weather has been ideal for conserving the moisture in the ground that has been planted to cotton. This obviates to some degree the effect of the drying winds on the 3d and 4th.

Dates on the station are very slow in blooming this year. Only three males have blossomed and only one female shows any signs of putting out spades. This is 30 days later than the season of 1932 and is probably due to the lower minimum temperatures in February. The mean minimum for February 1933 was 36.2 as compared with 41.2 for the same period last year.

Station work during the week consisted of trimming date palms, building fence on D-I-9 and D-I-16 for the hog-pasturing experiment, hoeing sugar beets, hauling date leaves, and general irrigation.

Max E. Crannell.

M I S C E L L A N E O U S

Mr. Geo. T. Ratliffe left for San Antonio, Texas, on March 4 after spending several weeks in Washington on official business.

Mr. Beyer Aune reached Washington on March 3 from Newell, South Dakota.

WEEKLY REPORTS

Of The Division Of
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No. 6

Newlands

The average maximum temperature for the two-week period ending March 13 was 59.7, with a maximum of 70 on March 11; the average minimum was 29.4, with a minimum of 19 on March 5. The mean temperature was 44.6. The average hourly wind movement was 3.93 miles. There was .08 of an inch of precipitation.

The weather during this period has been mild. The ground has thawed, allowing a resumption of field work. An endeavor is being made at the station to finish the remaining field work before April 1. The greater portion of the land leveling operations should soon be completed.

The price paid for butterfat remains at 17 cents a pound; eggs are selling at 15 cents a dozen, hay at \$4.00 a ton on the farm, beef at 4 cents a pound, pork at 4 cents, and lambs at 5 cents.

Money is now available through Government sources for purchasing poultry and turkeys, and many farmers intend to take advantage of this opportunity.

E. W. Knight.

Prosser

The maximum temperature for the week ending March 18 was 62, the minimum was 25, and the greatest daily range was 34. The rainfall amounted to .05 inch.

Burning weeds along irrigation ditches was continued during the week. From 85 to 95 per cent of fall-seeded alfalfa has been winter-killed. The injury to old stands of alfalfa has not been determined yet. About 95 per cent of the commercial varieties of peaches at the station suffered winter injury, but it seems that so far cherries have not been damaged.

Water has been diverted to the Sunnyside Canal, but it has not reached the station.

Alfalfa hay advanced \$1.00 and is now \$10.00 per ton for No. 1 baled hay f.o.b. car. Potatoes advanced \$1.50 and are now \$7.50 to \$8.50 per ton in sacks f.o.b. car. Wheat is 42 cents per bushel. Butterfat is now 17 cents per pound.

The maximum temperature for the week ending March 25 was 62, the minimum was 25, and the greatest daily range was 34°. The rainfall amounted to .03 inch.

Water arrived at the station in the Sunnyside Canal on March 23. The station is supposed to receive water the 27th or 28th of March.

Farm work consisted of cleaning the irrigation ditches, seeding wheat to farm fields, and harrowing alfalfa. Soil samples have been taken on alfalfa, wheat, and the orchard irrigation plots. Winter moisture is practically all in the first foot of soil. About 3,780

Prosser (cont'd)

feet of new flume will be installed this spring to replace the old flume at the station. In order that drainage water can be used for irrigation 400 feet of asphalted 24-gauge pipe will be laid.

Potatoes advanced \$1.50 per ton and are now \$9 to \$10 per ton for U. S. No. 1's in sacks, f.o.b. car. Alfalfa advanced \$1.00 per ton and is now \$11 per ton baled, f.o.b. car. Wheat advanced 3 cents per bushel and is now 45 cents. Butterfat declined 2 cents per pound and is now 15 cents.

Carl A. Larson.

Scotts Bluff

The average maximum temperature for the week ending March 18 was 56, with a maximum of 74; the average minimum was 25, with a minimum of 20. The average wind movement was 9.3 miles per hour. Only a trace of moisture was recorded.

As yet no work at the station has been started except fertilizing the plots and getting the hotbeds ready for the variety test in the garden and for truck investigations. There is still a very considerable shortage of soil moisture and not much plowing has been done yet.

The Great Western Sugar Company has announced its contract for the sugar beet crop this year. It is practically the same as last year except a provision for scaling down the price on a graduated scale in case the price of sugar for the coming year falls below \$3.25 per cwt. and there is a lowering of the tariff schedules. Both of these things must occur, however, before there is any scaling down of prices to the grower. The Beet Growers' Association has refused the terms claiming that the proposed reduction will throw more than 50 per cent of the loss on the grower, and it has instructed the Nebraska members of Congress to assist it in getting a more equal distribution of any loss that may occur. The Sugar Company, in the meantime, is signing up contracts with farmers who are not members of the association and is planning for an acreage well above normal.

Thirty-nine cars of lambs were shipped from the valley at the end of the period. The prices of lambs, cattle, and hogs made some gains during the week, the largest being made by lambs and hogs. The price of butterfat dropped 1 cent and eggs are down to 6 cents a dozen.

The average maximum temperature for the week ending March 25 was 47, with a maximum of 61; the average minimum was 22, with a minimum of 14. The wind movement averaged 10.3 miles per hour. The precipitation, in the form of a light rain that turned into snow, amounted to .24 inch, making a total for the year of .69 inch--all of which came during this month. A very serious shortage of snow in the North Platte watershed is reported, although considerable snow has fallen in the mountains during the month.

At a meeting of the Beet Growers' Association held the last of the week a resolution was adopted releasing the growers and allowing them to make contracts with the Sugar Company at the proposed figures offered by that company. The association called attention to the fact that the Sugar Company had been determining deductions on sugar and tonnage based on the performance of crops from 1913 to 1922 and asked that they establish a new basis, fair to both parties, determined by more recent performance.

Scotts Bluff (cont'd)

The Sugar Company reduced the price of beet seed 20 per cent for the season, making the price to growers 12 cents a pound. No change as yet has been made in the labor price, which will probably be the same as last year.

Cleaning out of corrals and fertilizing has been continued, but this work is about completed with the exception of the sheep pens.

The prices of all farm products except lambs have strengthened a little.

James A. Holden

Umatilla

During the week ending March 11 the maximum temperature was 55 and the minimum 28. The precipitation was .02 inch.

Reseeding rye on the uncultivated portions of the station was completed. The concrete was poured for the sumps in the new feed canal pumping plant.

Mr. D. E. Stephens, of Moro, Oregon, visited the station.

During the week ending March 18 the maximum temperature was 65 and the minimum 29. The precipitation was .11 inch.

Grading on the fifth series of rotation plots was completed and barley was seeded. Work was started on the last series.

The season is very dry and backward, with alfalfa and sweet clover just starting to grow.

The alfalfa variety nursery was planted, 83 varieties being included in these new tests.

Installation of the feed canal pumping plant was completed at the end of the week. Mr. M. R. Lewis, of the Irrigation Division, stationed at Corvallis, spent three days here assisting in the installation of the pumping plant and planning this year's irrigation experiments.

During the week ending March 25 the maximum temperature was 66 and the minimum 31. There was a trace of precipitation.

The damage to the alfalfa from the unusually severe winter appears now to be more than was previously thought. On some portions of the station fields at least half of it is killed. Sweet clover, which is usually considered more hardy, is also considerably damaged.

The morale of the farmers is very low. This very general winter-killing, along with their other troubles, has been the last straw. There is a pronounced shortage of hay now, and this year's hay crop will be short. Those who would cut down their herds feel that they can not do so and realize anything near the true value of their cows.

The barley and rye are emerging. On Monday an unusually severe wind damaged these crops considerably. A week of quiet growing weather would give the crops sufficient growth to prevent further blowing.

Messrs. Singleton and Larson, of the Prosser (Washington) station visited this station on the 24th.

H. K. Dean.

Yuma

The maximum temperature for the week ending March 18 was 79, the minimum was 42, and the greatest daily range 37. There was no precipitation. High humidity and cloudiness prevailed the first two days of the week. Winds on the 17th and 18th were not good for the cotton that had been planted.

The harvest of the spring lettuce crop is well under way; more than 80 cars were shipped during the past month. It is estimated that 450 additional cars will be shipped out during the remainder of the season. Prices have recently strengthened, one sale being made at \$2.25 per crate.

The station work during the week consisted of trimming and hauling date leaves, planting cotton in the rotations, cleaning cotton seed for planting, hoeing, and general irrigating.

The maximum temperature for the week ending March 25 was 82, mean maximum 78.1, minimum 41, mean minimum 44.9, and the greatest daily range 41. No precipitation was recorded. The first two days of the week were windy.

The sugar beet production test is progressing satisfactorily. Some of the selections are putting out seed stalks, and one that was selected in 1932 has stalks between 1 and 2 feet tall. The growth is several weeks in advance of last season's plantings. Good results have been obtained with respect to uniformity of growth.

Some of the farmers in the valley started to cut the first crop of alfalfa hay during the week. This is about two weeks later than the first crop was cut a year ago. The price of baled alfalfa hay ranges from \$5.00 to \$7.00 a ton. There is some carry-over of alfalfa hay from last season, but probably less than that from the 1931 season.

Station work during the week consisted of building fence on D-I-16 for the hog-pasturing experiment, weighing and placing hogs on pasture, driving a well for hog water, replanting cotton, hoeing garden, cementing irrigation check gate, and general irrigating.

Max E. Crannell.

M I S C E L L A N E O U S

After spending a few weeks in Washington, Mr. Beyer Aune has returned to Newell, South Dakota.

The galley proof of "Agricultural Investigations at the Huntley (Montana) Field Station, 1927 to 1930" has been corrected and returned.

SALT BALANCE OF THE IMPERIAL VALLEY IRRIGATION DISTRICT

Mr. M. J. Dowd

Imperial Irrigation District

Imperial, California

Dear Mr. Dowd:

We have now completed the analyses of the 52 sets of water samples that comprise the third year of observations on the salt balance of the Imperial Valley District. The results for the first year were reported to you by letter dated March 13, 1931, and those for the second year by letter dated March 14, 1932.

The procedure followed in collecting samples and reporting discharges has been the same for all three years; consequently, in reporting the results for the third year it is possible to make direct comparisons with the results reported for the first and second years. The cumulative results for each year of 52 weeks are shown in the following table. The first year ended February 26, 1931, the second year on February 25, 1932, and the third year on February 23, 1933.

Volume of water in acre-feet			
	1931	1932	1933
Irrigation water.....	2,646,914	2,213,986	2,207,408
Drainage water	1,067,821	857,766	799,060
Residue	1,579,093	1,356,220	1,408,348
Per cent residue	59.7	61.2	63.8
Quantity of salt in tons			
Irrigation water	3,212,967	2,952,346	2,725,758
Drainage water	2,112,190	1,881,321	1,646,014
Residue	1,100,777	1,071,027	1,079,744
Per cent residue	34.3	36.3	39.6

This comparison shows that for 1933 slightly less water was brought into the valley than formerly, that slightly less was discharged as drainage, and that approximately the same quantity was dissipated by transpiration and evaporation. With respect to the salts, the tonnage brought in by the irrigation water was less, as was also the quantity carried out by the drainage water. The difference between income and outgo was substantially the same for all three years.

The weighted mean composition of the irrigation water and of the drainage water for each of the three years is shown in the following table.

Irrigation water -							
Year	Total salts	Milligram equivalents					
	p.p.m.	HCO ₃	Cl	SO ₄	Ca	Mg	AB
1931	892	3.09	2.91	7.21	4.87	2.81	5.52
1932	980	3.26	3.78	7.76	5.09	2.97	6.81
1933	908	3.20	3.16	7.41	5.18	2.95	5.78
Drainage water -							
1931	1454	3.55	9.76	9.34	6.74	4.47	11.44
1932	1612	3.59	11.46	9.76	6.86	4.71	13.60
1933	1515	3.61	10.48	9.51	6.89	4.69	12.15

This comparison shows that both the irrigation and drainage waters contained a higher proportion of salts in 1932 when the volume of discharge of the Colorado was below normal.

Salt Balance Imperial Valley (cont'd)

The tonnage of each constituent identified in the irrigation water and in the drainage for each of the three years is shown in the following table.

Constituents in tons						
Year	HCO ₃	Cl	SO ₄	Ca	Mg	AB
Irrigation water -						
1931	338,834	371,489	1,245,860	350,883	122,917	457,561
1932	299,542	403,846	1,121,676	306,642	108,735	471,817
1933	293,411	336,865	1,067,953	311,260	107,480	398,926
Drainage water -						
1931	157,415	503,108	651,105	195,877	78,936	382,099
1932	127,729	474,789	546,758	160,034	66,710	365,041
1933	119,727	404,165	496,341	149,752	61,972	303,777
Residue - irrigation less drainage						
1931	181,419	-131,619	594,755	155,006	43,981	75,462
1932	171,813	-70,943	574,918	146,608	42,025	106,776
1933	173,684	-67,300	571,612	161,508	45,508	95,149
Residue as percentage of inflow -						
1931	53.5	-35.4	47.7	44.2	35.8	16.5
1932	57.4	-17.6	51.2	47.8	38.6	22.6
1933	59.2	-20.0	53.5	51.6	42.3	23.9

It is apparent from the results shown in this table that while the total quantity of dissolved solids brought in by the irrigation water exceeds the quantity removed by the drainage, the quantity of chloride carried away in the drains exceeds that brought in by the irrigation supply. The net favorable balance for the district with respect to this constituent for the 3-year period is approximately 270,000 tons, or an average of 90,000 tons per year. This quantity of chloride if computed as sodium chloride, or common salt, would amount to 145,000 tons.

It would appear that under present conditions the character of the salts contained in the irrigated lands of the district is undergoing a gradual change. While the quantity of chloride is diminishing, that of the other constituents is increasing. In the case of sulphates, for example, the net increase during the past three years has been 1,740,000 tons, or 580,000 tons per year. This is equivalent to approximately one million tons of gypsum.

I wish again to express to you and to your associates my appreciation of the cooperation that has made this investigation possible. Members of your staff have collected water samples and reported discharge data for 156 consecutive weeks, the weather notwithstanding.

Very truly yours,

C. S. Scofield.

Rubidoux Laboratory
Riverside, California
March 14, 1933.

SALT BALANCE CONDITIONS ON THE EL PASO PROJECT

Mr. L. R. Flock
Bureau of Reclamation
El Paso, Texas

Dear Mr. Flock:

With your letter of February 27 I have the discharge data for the Rio Grande at six stations from San Marcial to Ft. Quitman. From these data and the analytical results reported by Breazeale on water samples collected under your direction I have computed the tonnage of salts carried past these stations. These results for the calendar year 1932 are summarized in the following table.

Table 10/33. The discharge and salt burden of the Rio Grande in the vicinity of El Paso, Texas, for the calendar year 1932. Discharge data and water samples from Flock, analyses by Breazeale.

Station	Discharge, acre-feet	Number of analyses	Salt content, tons per acre-foot	Salt burden, tons
San Marcial	1,399,460	25	*	*
Elephant Butte	832,000	10	0.792	658,885
Leasburg	814,000	53	.835	679,283
El Paso	567,240	51	1.20	681,824
Fabens-Tornillo	291,606	57	1.87	544,431
Ft. Quitman	211,120	52	2.72	573,821

*Samples taken only during six months.

I have not computed the salt tonnage for San Marcial because the stream was sampled at this station during only six months of the year, and these months did not include the highest discharge. Comparison of this table with the corresponding one in my letter of May 23, 1932, shows that for the stations above Fabens-Tornillo both discharge and salt tonnage were higher in 1932 than in 1931. At Fabens-Tornillo the discharge was slightly higher and the salt tonnage slightly lower, while at Ft. Quitman the discharge was substantially the same but the total salt tonnage was less by 60,000 tons.

There is another way of expressing the progressive change in the quality of the water passing the gaging stations. This may be done by using the means of the monthly mean conductances ($K \times 10^5$ @ 25°C.) and the means of the per cent of sodium. This latter is an expression of the relative "hardness" of the water in the agricultural sense, i.e., the ratio of the alkali bases (AB) expressed as sodium to the total bases. Technically this is expressed as:

$$\frac{rAB \times 100}{rCa + rMg + rAB}$$

According to our present views as to the effect of irrigation water on the base exchange reactions of the soil, the quality of the water is better as the per cent of sodium is lower. When the per cent of sodium is below 50 the use of the water should not cause trouble in hardening the soil. When the percentage of sodium is above 60 such trouble is likely to result. Thus we say the critical range in respect

Salt Balance of El Paso Project (cont'd)

to the per cent of sodium lies between 50 and 60. The following are the mean conductances and the mean sodium percentages for the five stations, Elephant Butte to Ft. Quitman, for 1932:

Station	Mean conductance	Mean per cent sodium
Elephant Butte	82	45
Leasburg	96	47
El Paso	148	55
Fabens-Tornillo	215	58
Ft. Quitman	334	64

There is no evidence from the samples taken below the Elephant Butte Dam that there was during 1932 a discharge of muddy water similar to that reported for September 22 and 23, 1931.

Table 11/33. The discharge, salt burden, and tonnage of each salt constituent at five stations on the Rio Grande near El Paso, Texas, for the year 1932.

Dis-charge:		Constituents in tons							
Station	acre-feet	salts, tons	HCO ₃	Cl	SO ₄	Ca	Mg	AB	Total
Elephant Butte	832,000	658,885	96,632	58,647	262,331	80,790	19,655	106,963	625,018
Leasburg	814,000	679,283	107,034	97,857	257,187	88,785	20,305	126,036	697,204
El Paso	567,240	681,824	92,705	149,256	241,432	78,533	19,304	155,431	736,661
Fabens	291,606	544,431	54,068	146,700	154,763	53,618	13,392	122,957	545,498
Ft. Quitman	211,120	573,821	36,343	213,541	134,098	50,993	13,114	149,907	597,996

Table 11/33-a. The proportion of each constituent to the total constituents identified, and of this total to the total salts as shown in Table 11/33.

Station	HCO ₃	Cl	SO ₄	Ca	Mg	AB	Total
Elephant Butte	15.5	9.4	42.0	12.9	3.1	17.1	94.8
Leasburg	15.3	14.0	36.9	12.7	2.9	18.1	102.6
El Paso	12.6	20.3	32.8	10.7	2.6	21.1	108.0
Fabens	9.9	26.9	28.4	9.8	2.5	22.5	100.2
Ft. Quitman	6.1	35.8	22.4	8.5	2.2	25.1	104.2

Table 11/33 is similar to the corresponding table in my report for last year. It shows, as did the former table, that the quantity of chloride and of alkali bases (chiefly sodium) carried away from the project past Ft. Quitman is much larger than is carried in the water either at Elephant Butte or at Leasburg. The tonnage of the other constituents becomes progressively less in the down-stream direction.

Very truly yours,

C. S. Scofield.

W E E K L Y R E P O R T S
Of The Division Of
WESTERN IRRIGATION AGRICULTURE

Bureau of Plant Industry
United States Department of Agriculture

(Not for publication without the prior consent of this division.)

Vol. XXXV

April 1, 8, and 15, 1933

No. 7

Belle Fourche

During the week ending April 8 the maximum temperature was 68 and the minimum 14. The precipitation was .04 inch.

Field work was started the first of the month. All plots in grain or cultivated crops were disked and floated in the fields A and P. The land for the commercial fertilizer test was plowed, double disked, and floated. The seeding of wheat, oats, and barley in the dry-land rotations was completed, also the seeding of barley in field F.

At this time the Orman Reservoir contains about 125,000 acre-feet of water as compared with 81,000 acre-feet a year ago. During March and April much snow fell in the Northern Hills, so an ample supply of water for irrigation is assured for the coming crop season.

There has been no improvement in the prices for crops. Wheat is selling at the elevator for 32 cents a bushel, oats 35 cents a cwt., barley 25 cents a cwt., and corn 40 cents a bushel. Very little grain is sold at these prices; there seems to be a large supply stored up on the farms. Hay is selling for \$3.50 to \$4.00 in the stack, with a large amount to carry over. Cream at the local station is selling at 15 cents and eggs at 8 cents a dozen.

Lambing at the farm is just about completed.

Beyer Aune.

Huntley

The maximum temperature during the week ending April 8 was 68 and the minimum 17. The precipitation was .06 inch. Weather conditions were favorable for field work during the past ten days and good progress is being made in preparing land and seeding early crops.

On the project the first seeding of sugar beets was done during the week. Nearly all of the land to be cropped to beets is being fertilized with treble superphosphate. The area in beets on the project will be in excess of 6,000 acres, while the total acreage in the Billings factory district is well over 30,000 acres.

At the station the preparation of the land and seeding of all grains in the dry-land project was completed. All of the fall-plowed land on the irrigated part of the station was harrowed and beet plots are being prepared for seeding.

Dan Hansen.

Newlands

The average maximum temperature for the two-week period ending April 1 was 60.9, with a maximum of 73 on March 27; the average minimum was 27.2, with a minimum of 18 on March 24. The mean temperature was 44. The average hourly wind movement was 3.86 miles. There was .37 of an inch of precipitation.

One irrigation has been given to the K series of plots, pastures, young alfalfa, and the newly leveled J series. This latter series of plots was irrigated in order to check the leveling job and form a moist seed bed for later planting. The following seeding has been done during this period: D-1, barley; D-4, barley; E-3, barley; F-1, barley; Y-6 to 23, inclusive, barley; C-11 to 13, inclusive, wheat; F-2 to 7, inclusive, wheat; K-1 to 8, inclusive, yellow sweet clover; Y-11 to 18, inclusive, white sweet clover.

Many of the plots seeded to grain later will be seeded to alfalfa. The grain merely acts as a nurse crop and is not a part of the rotations or reclamation schemes.

The average maximum temperature for the two-week period ending April 15 was 63.5, with a maximum of 77 on April 3; the average minimum was 30.8, with a minimum of 16 on April 10. The mean temperature was 47.2. The average hourly wind movement was 3.93 miles. There was no precipitation.

During this period one irrigation was given the newly seeded plots of the Y series, grain plots of D and E series, and all of the F series of plots. Other station work has included the cultivation of ditches, roads, etc. to destroy weeds, furrowing and irrigating orchard, and burning weeds. Fifty-one trees of various fruit varieties have been planted in the orchard, not over two being of any one variety. Several varieties of pears were developed by nursery companies and are supposed to be resistant to blight. During the past four or five years blight has been particularly severe. Many of the pear trees of early plantings have been destroyed.

Mr. Moon has been preparing survey maps of the project showing the types of water encountered in the project well and drainage water.

At present butterfat is 21 cents per pound. Eggs remain at 15½ cents per dozen, beef at 5 cents, lambs at 3½ cents, and pork at 4½ cents per pound.

The banking situation remains unchanged, but there is hope of an adjustment in the near future. The State legislature passed most of the necessary banking legislation before adjournment.

E. W. Knight.

Prosser

The maximum temperature for the week ending April 8 was 69, the minimum was 27, and the greatest daily range was 39°.

Water was diverted to the station on April 5, 666 c.f.s. being diverted to the Sunnyside Canal and more than 4,000 c.f.s. going over the dam. At the present time 446,740 acre-feet is held in storage. In Snoqualmie Pass of the Cascade Mountains 132 inches of snow is on the ground.

There have been varying degrees of winter injury to alfalfa stands in the valley. Some old stands near Yakima were killed out entirely. Alfalfa cover crops in orchards were not damaged to any great extent. Utah Common and other common varieties of verified origin are principally

Prosser (cont'd)

used in this section.

About 800 feet of 8-inch flume and about 400 feet of 6-inch flume have been constructed and put into place during the week. Alfalfa flood basin plots were prepared for irrigation. The basins receiving 18 and 20 inches of water will be irrigated first because they were not fall irrigated.

U. S. No. 1 hay is now \$13 to \$14 per ton baled, f.o.b. car, showing an increase of \$1 to \$2 per ton over the previous week. Hops are now 26 cents per pound.

The maximum temperature for the week ending April 15 was 75, the minimum was 23, and the greatest daily range was 40°.

The alfalfa flood basin plots have been irrigated and soil samples taken.

The price of wheat is now 48 to 50 cents a bushel, making a gain of 3 to 5 cents per bushel. At the end of the week butterfat was 17 cents per pound. Potatoes are now moving for \$14 to \$15 per ton in sacks, f.o.b. car. This price represents a gain of \$2 to \$3 per ton during the week.

Since the legalization of beer much attention has been centered on the hop industry. The largest hop district in the Yakima Valley irrigation system is the Moxee Valley, a few miles east of the city of Yakima. Hops have been produced in this district for many years. During the latter part of the winter and early spring about 600 acres of new hop plantings have been made and many more scattered acreages in the Sunnyside and Toppenish districts have also been planted. The cost of new plantings averages about \$75 per acre. The large English hop is generally grown in this area. Many growers have signed three-year contracts to sell their hops for 20 cents per pound. One grower, who has raised hops in the Moxee Valley for 20 years, stated that with present prices for labor and materials, hops can be produced for 9 cents per pound. On the heavy soil of the Moxee Valley four irrigations for the season are sufficient to produce a crop. Hops are not particularly sensitive to salt accumulation, judging by the appearance of surface salt on the soil in many of the hop yards. Many hops are grown in western Washington and Oregon, but the growers have experienced some difficulty with fungus diseases due partly to the humid climate. This difficulty is not apparent in the dry climate of the irrigation districts.

Carl A. Larson.

Scotts Bluff

The average maximum temperature for the week ending April 1 was 64, with a maximum of 77; the average minimum was 28, with a minimum of 22. The average wind movement was 9.8 miles per hour. There was no precipitation.

Vines from the potato plots were raked and burned. All plots have been disked. All of the larger fields have been disked with the tractor and tandem disk. Plowing will be started next week.

Many farmers have been seeding grain. There seems to be a tendency towards earlier seeding this year than usual. Some are even considering seeding alfalfa at this time; but that is rather risky, for in only two years out of the past 20 would alfalfa have had any chance to escape freezes that would have killed it.

Scotts Bluff (cont'd)

The Poultry Association has commenced shipping eggs in car lots to the eastern markets, the third car having been shipped last week. They are very well satisfied with the returns as it has been possible to obtain better prices than are paid locally. The local price is 7 cents a dozen.

It is reported that the storage in the Pathfinder Reservoir at this time is more than 300,000 acre-feet and that the supplemental reservoirs have more than the normal amount. No official reports have been made on the snow conditions in the North Platte watershed.

Markets: The top price of fat cattle and sheep is \$6.50 and \$5.40. Feeder steer calves are selling at \$6.50, the same price as prime fat yearlings. Hogs lost from 15 cents to 25 cents during the week, closing with a top of \$3.60. Butterfat has advanced to 13 cents a pound. The cheese factory is paying 18 cents a pound for butterfat in milk.

The average maximum temperature for the week ending April 8 was 57, with a maximum of 71; the average minimum was 23, with a minimum of 9. The week has been extremely windy with an average hourly wind movement of 15.4 miles. The evaporation amounted to only 0.96 inch, but on three days the evaporation tank was frozen over most of the time. No precipitation was recorded.

Work at the station has been carried on steadily during the week. All of the plots in field K that are to be seeded to grain and alfalfa and the beet plots have been plowed and harrowed. The sweet clover pasture in field E that has been used for the dairy cows and sheep and the sweet clover field on the Walker tract that was pastured last year have been plowed with the tractor. Much moisture is in the ground, but it is probable that crops seeded now will not emerge until after the rains begin. A large part of the grain has been seeded.

Contract beet laborers have been holding meetings during the past week protesting against the contracts that have been suggested for this season. A plan is being prepared to offer laborers a portion of the beets in payment for their services. This was done in a few cases last year and the growers seem to favor it. It would decrease the necessity for a certain amount of financing.

It has been decided not to have a Lamb Feeders' Day this spring. It was rather late before the test was finished and the farmers are too busy now to take the time off. Only a few pens of lambs are left in the Scotts Bluff district, and these will probably be shipped out very soon. The price has been very discouraging and there seems to be little hope of any recovery.

No advance has been made in the prices of any farm products except potatoes. The best of these have sold up to 60 cents per hundred. Alfalfa hay has been selling at from \$3.50 to \$5.00 a ton. Eggs are now bringing 8 cents a dozen and butterfat 13 cents a pound.

The average maximum temperature for the week ending April 15 was 50°, with a maximum of 71; the average minimum was 20; with a minimum of 12. The wind velocity was 11.3 miles per hour. The evaporation was 1.129 inches for the week, with a daily average of .161 inch. There was a small shower the first of the period bringing .11 inch of precipitation, making a total for the year of .80 inch, which is about 30 per cent below normal.

The week has been favorable for all farm work and a great deal has been accomplished. Practically all of the plowing has been completed on both tracts and the grain and beet plots in field K are ready for plant-

Scotts Bluff (cont'd)

ing, which will be commenced the first of the coming week.

Alfalfa and sweet clover are starting very slowly this spring, and it looks as if much of last year's seeding was lost through winter-killing. The winter was exceedingly dry, with practically no snowfall and with unusually heavy winds. Reports from over the project indicate that the loss in last year's seeding of alfalfa and sweet clover was considerable.

In the Panhandle district the winter wheat loss has been almost complete and the replacing of it with spring wheat has been delayed through weather conditions.

A considerable acreage of beets has been planted, but there is not enough moisture in the ground to germinate them until the rains set in.

The beet laborers in the valley are still working for a better contract than the share plan or the cash offer of \$14 per acre. They have now offered a plan for a graduated scale based on the price the farmer gets for beets, varying from \$12 per acre for \$3.25 beets to \$18 per acre for \$6 beets. So far the Sugar Company has not considered any of the plans that labor has offered.

Eggs are now being bought by grade, the highest grade bringing 9 cents per dozen. For farm-run eggs it amounts to about 8 cents per dozen, which is the same that was being paid prior to the change. Fat lambs advanced about 15 cents per hundred pounds during the week and butterfat 1 cent.

James A. Holden.

Umatilla

Under date of April 6, Mr. H. K. Dean reported as follows:

"As I have indicated in recent weekly reports, the alfalfa here was very seriously injured by winter-killing. At first it was thought that the young, vigorous stand on the station was not badly injured, but the situation grows worse daily. We are reseeding all of the alfalfa and sweet clover. Many of the plants which appeared to be all right throw out a few leaves which wither after a few days. The killing is spotted in different parts of the fields, but in no portion is there less than 75 per cent killed, and it is estimated that in the whole field 90 per cent or more has been killed. We are in a bad situation for feed: our hay is getting low, pastures are slow in starting, and the hay crop this year will be small. A good deal of grass on the grounds was killed. It is thin in every place and there are some bare spots as large as 20 feet across."

Yuma

The maximum temperature for the week ending April 1 was 88, mean maximum 84.8, minimum 38, mean minimum 43.4, and the greatest daily range 47. The maximum for the week ending April 8 was 96, mean maximum 86, minimum 45, mean minimum 50, and the greatest daily range 49. There was no precipitation during this two-week period. Two days were partly cloudy and the rest were clear.

The rapid rise of the maximum temperatures practically ended the lettuce harvest for this year. However, the return of cooler weather may firm the heads of the late plantings sufficient for packing. The

Yuma (cont'd)

good prices during the spring season brought the Yuma Valley farmers satisfactory returns.

The last cotton is being planted in the valley, which is somewhat later than usual and does not permit replanting in case of a poor stand. There has been difficulty this year in obtaining a stand of cotton in the rotations because of drying winds.

Station work has consisted of trimming date palms, cultivating cotton, hoeing garden, cleaning irrigation ditch, building fence, hauling straw from sheep pen, and general irrigating.

Max E. Crannell.

M I S C E L L A N E O U S

A manuscript entitled "Cotton Root Rot as Affected by Crop Rotation and Tillage at San Antonio, Texas," by Geo. T. Ratliffe, has been submitted for publication as a technical bulletin of the Department.

WEEKLY REPORTS

Of The Division Of
WESTERN IRRIGATION AGRICULTUREBureau of Plant Industry
United States Department of Agriculture

(Not for publication without the prior consent of this division.)

Vol. XXXV

April 22 and 29, 1933

No. 8

Belle Fourche

The maximum temperature for the week ending April 22 was 83 and the minimum 31. The precipitation was 2.11 inches.

The precipitation for April was 2.64 inches, 1.13 inches above the average. During the week about 2 feet of snow fell in the Northern Hills and Bear Lodge Mountains. This will give ample water for irrigation during this crop season. About 144,000 acre-feet are now stored in the Orman Reservoir, and the inlet canal is run to capacity most of the time.

Most of the planting of small grain was completed before the rain. All the land for other crops was prepared and ready for planting.

Thirteen thousand eight hundred acres of beets have been signed up in this territory. This is the largest contracted acreage since the factory was built. Most of the hand work will be done by local labor. Plans for organizing school boys and boy scouts into groups for field work is progressing steadily and very satisfactory response is being made by the various schools. The factory made an additional payment of 20 cents per ton on last year's crop of beets on April 1, making a total of \$4.45 per ton to date. Should present prices for sugar continue an additional payment of about \$1.00 is expected.

Wheat has shown some improvement the last two weeks, selling at the local elevator for 44 to 47 cents per bushel. Other farm commodities are about the same as previously reported.

Graveling of the road from Newell to the farm gate has been completed.

Beyer Aune.

Huntley

The maximum temperature during the week ending April 22 was 62 and the minimum was 26. The precipitation, which was .35 inch, occurred in the form of snow and will be of much benefit in starting early seeded crops. About two thirds of the beet acreage on the project as well as the grain acreage has already been seeded. Range and winter grain conditions over the State are reported to be much improved as a result of recent moisture, which was much heavier in most sections than it was at the station.

Station work during the week included the seeding of beets, wheat, and alfalfa in the rotation plots and preparing land for the seeding of other grain crops.

Huntley (cont'd)

The price of butterfat has advanced to 16 cents per pound. Alfalfa is selling at \$4.00 a ton and Great Northern beans at \$1.50 a cwt. Several large clips of wool have been contracted at 15 cents to 15½ cents, which is about 5 cents higher than the price paid in 1932.

Dan Hansen.

Newlands

The average maximum temperature for the two-week period ending April 29 was 64.5; with a maximum of 75 on April 23 and 28; the average minimum was 37, with a minimum of 23 on April 18. The mean temperature was 50.8. The average hourly wind movement was 4.66 miles. There was .78 of an inch of precipitation.

Economic conditions on the project show some improvement. Many farmers have taken advantage of the low prices being paid for hay and labor to rework unproductive areas on their farms. Some of this land was farmed in earlier years but became unproductive as a result of seepage or lack of good farming practice. Other areas were formerly not cropped but otherwise are productive soil. Most farmers of the project generally have several horses that are idle during the winter months. Many men are willing to work for their board. As a result of this combination of idle stock, men willing to work for little pay, and \$4.00 hay, much work has been done which would not have been undertaken during times of higher prices.

Butterfat is selling for 23½ cents and beef for 5 cents a pound. Eggs still remain at 13½ cents a dozen. The advance in butterfat and beef prices has given encouragement to the dairy and beef farmers.

The work at the station has consisted of cleaning irrigation ditches, seeding alfalfa, irrigating newly seeded grain and sweet clover, building fences, whitewashing corrals, and grinding hay for the dairy stock. The roofs of all the State buildings are being cleaned in preparation for oiling. A system of individual drinking cups has been installed in all feed mangers. It is thought that available water during the time the cows are locked in their stanchions will result in an increased flow of milk.

Director Doten, of the State Experiment Station, while on a recent visit inspected the dairy herd and the proposed site of a turkey-feeding experiment.

E. W. Knight.

Prosser

The maximum temperature for the week ending April 22 was 80, the minimum was 29, and the greatest daily range was 41°.

Farm work consisted of seeding sweet clover and irrigating alfalfa. To measure water for the irrigation plots 90° angle notch weirs were installed on the "E" fields.

Wheat advanced to 55 cents during the week and then declined to 50 to 52 cents at the close of the week. Barley advanced \$3.00 per ton and is now \$16 per ton. Hop prices increased 4 cents per pound and are now 29 to 30 cents per pound baled, f.o.b. car. U. S. No. 1 potatoes are now selling for \$19 to \$20 per ton in sacks, f.o.b. car, but growers are reluctant to sell at this price. Butterfat is now 19 cents a pound.

The maximum temperature for the week ending April 29 was 85, the

Prosser (cont'd)

minimum was 38, and the greatest daily range was 42°. Rainfall amounted to .35 inch, all of which came in one shower, which was beneficial to new seedings of alfalfa and sweet clover.

Water was applied to the first irrigation plot in the orchard on April 28. Wheat and alfalfa plots were irrigated.

U. S. No. 1 potatoes declined \$2.00 per ton and are now \$17 and \$18 per ton in sacks, f.o.b. car. The price of hops is now 35 cents, an increase of 5 cents per pound. Butterfat is now 23 cents a pound.

Carl A. Larson.

Scotts Bluff

The average maximum temperature for the week ending April 22 was 62, with a maximum of 81; the average minimum was 37, with a minimum of 33. The average wind movement was 15.3 miles per hour, probably the heaviest for a week that has ever been recorded at this station. The precipitation amounted to 2.70 inches, making a total of 2.81 inches for the growing season and 3.50 inches for the year.

The rain during the period was very beneficial. It was a slow rain coming with a high wind, which for 48 hours averaged over 24 miles per hour; but there was no run-off from the fields and the subsoil is in excellent condition. The rain was general over all the valley, but the precipitation was heavier in the east and west ends of the valley than it was here. At Bridgeport it was over 3 inches and at Wheatland, Wyoming, it was over 4 inches. It also extended through wheat and dry land potato sections south to the State line. There was a very heavy snowfall in the North Platte watershed, and the prospect for water during the irrigation season is very much brighter. There is more than 400,000 acre-feet in the Pathfinder and the auxiliary reservoirs are now being filled, the water reaching Lake Alice this week. The rain just received will probably make it unnecessary to use the laterals until May 15 or later, depending on subsequent rains.

The grain and beet plots in field K, the grain plots and the beets in the fertilizing experiment plots in field E were seeded just ahead of the rain, as were the grain and beet plots in rotation 121 (the new 12-year rotation in field C).

Practically all the lambs in the valley will be shipped out by the end of the month. Fat lambs seem to have reached their highest price for the present season and feeders are letting them go, taking a loss in many cases.

The average maximum temperature for the week ending April 29 was 64, with a maximum of 80; the average minimum was 39, with a minimum of 33. The precipitation amounted to .06 inch, making a total of 2.87 inches for the growing season and 3.56 inches for the year, this being, respectively, 80 and 50 per cent above the normal. The average hourly wind movement was 7.7 miles. The evaporation averaged .127 inch per day.

Soil conditions are excellent. Following the good rains there has been little wind and no hot weather, so the loss from evaporation has been small. The grain and beet plots in field K and the grain and fertilizing test beet plots in field E were harrowed to break the crust that had formed. The rotation beet plots in field E were plowed, prepared, and seeded. The soil was in the finest condition for seeding.

Scotts Bluff (cont'd)

The alfalfa plots in fields K and C, in which the alfalfa was seeded alone, were seeded, also the sweet clover pasture tracts on both farms.

A representative of the Agriculture Finance Corporation held a conference with the directors and stockholders of the Cooperative Cheese Company. As a result of the conference the company will pool its milk and butterfat purchases beginning May 1. The pool will cover a 15-day period, and the company will advance 80 per cent of the value on delivery. The balance will be paid at the end of each 15-day period.

Prices of livestock have advanced some. Fat lambs have sold above \$6.00 at the Missouri River markets, the highest they have been for several months. A truckload of hogs was sold from the station on the local market. They averaged 238 and brought \$3.35 per cwt., which was within 20 cents of Omaha tops for that day.

James A. Holden.

Umatilla

During the week ending April 15 the maximum temperature was 75 and the minimum 30. The precipitation was .09 inch, .02 of an inch falling as snow. This snow was the latest in the season ever recorded at this station.

The sweet clover pasture which was badly killed during the winter was reseeded with oats and sweet clover. Twenty-one varieties of alfalfa were seeded in approximately quarter acre plots in the field east of the buildings along the feed canal. A variety test including 19 varieties of grasses and four mixtures was started. Grading work on the 40-acre tract to be devoted to rotations was completed at the end of the week. Some work remains to be done on the irrigation system.

During the week ending April 22 the maximum temperature was 80 and the minimum 32. There was no precipitation.

A test of sweet clover in nursery rows, 33 varieties in all, was seeded. The contractors have finally completed moving the residence from the old station site to the new. The pasture and new alfalfa were irrigated.

H. K. Dean.

Yuma

The weather during the week ending April 29 has been variable. The maximum temperature has varied from 62 on the 28th to 91 on the 23d. A rain of .68 inch fell on the 28th and a trace on the 29th. The average wind velocity for April was 6.8 miles; the maximum velocity was 24 miles per hour.

The mean stage of the Colorado River, as reported by the meteorologist at the local U. S. Weather Bureau, was 19 feet; the highest was 19.6 feet, and the lowest was 18 feet. The discharge at Yuma was 351,000 acre-feet as compared with 1,423,600 acre-feet in April 1932. The 31-year average discharge for April is 1,237,500 acre-feet.

The cool weather during April has retarded the growth of cotton. The wind has made it difficult to obtain a stand. In an attempt to overcome this difficulty many farmers have irrigated their cotton. Most of the trouble has been on the heavy soil, which becomes hard on drying.

Mr. H. L. Westover has been at the station for three days taking notes on alfalfa selections.

Max E. Crannell.

W E E K L Y R E P O R T S

Of The Division Of
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 Bureau of Plant Industry
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(Not for publication without the prior consent of this division.)

Vol. XXXV

May 6 and 13, 1933

No. 9

Huntley

The maximum temperature during the week ending May 6 was 66 and the minimum was 35. The precipitation was .00 inch.

Light showers during the past two weeks have been of some benefit to crops that have started but were not sufficient to start later seedings of beets and grains. For this purpose irrigation is necessary. Water was turned into the irrigation canal on April 27. The seeding of beets and grains on the project is nearly completed.

Station work during the week included preparation of land, seeding of late grains and beets, and cleaning irrigation ditches and irrigating pastures.

The price of wheat has advanced to 57 cents per bushel and Great Northern beans to \$2.10 per cwt. Butterfat is up to 18 cents.

The maximum temperature during the week ending May 13 was 63 and the minimum 32. The precipitation was 2.16 inches.

The unusually heavy rainfall during the week will be of much benefit to crops, particularly in insuring stands of beets and grains without the necessity of irrigation. The seeding of beets in this district was nearly completed. The rainfall was general over the State and in the higher sections occurred in the form of snow. It is reported that there have been rather heavy losses of lambs in range flocks.

No field work was possible at the station during the week. Employees were engaged in repairing buildings and fences.

Dan Hansen.

Newlands

The average maximum temperature for the two-week period ending May 13 was 57.2, with a maximum of 68 on May 4; the average minimum was 32.8, with a minimum of 28 on May 3. The mean temperature was 45. The average hourly wind movement was 5.58 miles. There was .65 of an inch of precipitation.

Prices of farm products have decreased a little since the last report. Butterfat is now 23 cents a pound and eggs 15 cents a dozen.

The station activities have been devoted to irrigating, ditch cleaning, and overhauling machinery. The new areas of the station, recently leveled, are fast taking on the appearance of mid-spring. There is a fair stand of grain, alfalfa, and sweet clover.

Messrs. C. S. Scofield and L. V. Wilcox, of the Rubidoux Laboratory, visited the station recently, Mr. Wilcox arriving on May 4, Mr. Scofield on May 8, and both departing on May 10. Mr. Wilcox devoted most of his time while here to the laboratory work. Mr. Scofield re-

Newlands (cont'd)

viewed our field and underground water studies, and made plans for improving our field activities and increasing the scope of the water and soil studies both on the station and the project.

E. W. Knight.

Prosser

The maximum temperature for the week ending May 6 was 64, the minimum was 30, and the greatest daily range was 30°. Rainfall amounted to .44 inch. The orchard heaters were used on the night of May 6 because the temperature dropped to a dangerously low point.

Irrigation of the plots in the apple orchard was continued during the week, and soil samples also were taken.

At this time last year 20 more carloads of asparagus had been shipped than have been shipped so far this season. The growth of asparagus has been retarded by the cool weather and damage by frost.

U. S. No. 1 potatoes are now \$16 and \$17 per ton in sacks, f.o.b. car.

The maximum temperature for the week ending May 13 was 78, the minimum was 32, and the greatest daily range was 40°. The rainfall amounted to .11 inch.

The alfalfa plots on field E-7 were irrigated, and the irrigation of plot 3-A in the orchard was completed. Corn was planted on the irrigation plots in field E-8. Over 50 per cent of the acreage under headgate No. 1 is planted to new seedings of alfalfa and sweet clover. The management of irrigation water requires constant attention to prevent the new seedings from becoming too dry.

The prices of many farm products increased during the week.

Carl A. Larson.

Scotts Bluff

The average maximum temperature for the week ending May 6 was 54, with a maximum of 62; the average minimum was 38, with a minimum of 33. The precipitation amounted to 1.62 inches, making a total of 4.49 inches for the growing season and 5.18 inches for the year. The evaporation was only .086 inch. The average hourly wind movement was 11.8 miles.

Little field work has been done as five days of the week were more or less rainy. The plowing of the larger fields is practically finished. The corn and potato plots have not been plowed. The flax plots in rotations 9 and 65 were seeded. The crops are all coming up well, but they need warmer weather and sunshine. Alfalfa and sweet clover are making very slow growth.

The lamb-feeding test closed during the week. A representative of one of the commission firms appraised the lambs, which were shipped at the end of the week. The price of fat lambs has been going up and the top is above \$6.00 for the first time in several months.

Lambing of the breeding flock, consisting of 18 ewes, has been finished, and the lamb crop is 172 per cent. Fifteen of the 17 ewes that lambed had twins.

It appears that there will be quite an increase in the beet acreage in the valley this year. Reports from officials of the Sugar

Scotts Bluff (cont'd)

Company indicate that there will be approximately 70,000 acres of beets this year as compared with about 55,000 last year--an increase of approximately 25 per cent.

At the end of the week approximately 525,000 acre-feet of water was stored in the Pathfinder and Guernsey Reservoirs. This is about the same as last year. No water has been turned into the canals as yet except the Interstate Canal for filling Lakes Alice and Minitare, both of which are now well filled.

The average maximum temperature for the week ending May 13 was 53, with a maximum of 60; the average minimum was 33, with a minimum of 28°. The wind movement has averaged 9.5 miles per hour. The evaporation has averaged .111 inch per day. The precipitation was 1.15 inches, making a total for the growing season of 5.64 inches.

Soil moisture conditions are excellent. Though the cool, cloudy weather has slowed up the rate of growth of all crops, they will soon be back to normal with the coming of sunshine and warmer weather. Since the 19th of April, when it commenced raining, there have been 14 cloudy, 7 partly cloudy, and 4 clear days. It has brought subsoil moisture conditions back almost to normal and no bad effects have so far resulted. Many beets have been planted, but those that are to be planted will have the most ideal conditions for germination.

During the latter part of the week it has been possible to do some plowing. The grass pastures in field B practically have been killed out during the past two dry years, so they have been plowed up and will be seeded to sweet clover. The potato plots in field K have also been plowed during the week.

Water conditions continue favorable. The Pathfinder Reservoir has about 500,000 acre-feet at this time; the Guernsey Reservoir has 70,000 acre-feet, and Lakes Alice and Minitare are filled. The inflow in the Pathfinder has been reduced by the cool weather, but the snow water, except in the lowest foothills, has not commenced to run. Even with the subnormal snowfall of the past winter, there seems to be little fear of a water shortage.

The top price of \$6.35 was received for the lambs shipped last week. Although the results have not yet been summarized, the operations will show a small profit. The price of fat lambs has continued to advance and at the end of the week the tops were selling at \$6.60. Hogs have also made some progress and are now above \$4.00.

James A. Holden.

M I S C E L L A N E O U S

office

The post/at Bard, California, has been abolished. The address of the Yuma Field Station is now Route No. 2, Yuma, Arizona.

The following manuscripts have been submitted for publication as Technical Bulletins of the Department of Agriculture:

Boron in San Joaquin Valley Irrigation Waters
I. Agricultural Significance

Boron in San Joaquin Valley Irrigation Waters
II. Boron Survey and Quality of Water.

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W E E K L Y R E P O R T S

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Vol. XXXV

May 20 and 27, 1933

No. 10

Belle Fourche

During the week ending May 20 the maximum temperature was 80 and the minimum 39. The precipitation was .70 inch.

From May 1 to May 20 there were 15 days on which some precipitation occurred; which made it very difficult to do any field work. The first of the week we managed to plant the late-seeded grain plots in field A, the variety flax in field P, corn in field A and M-P, and fertilizer beets in P. Mr. E. S. Lyons, of the Bureau of Chemistry and Soils, supervised the latter planting. Rains on Friday and Saturday prevented any further field work.

At this time there are some 10,000 acres of beets planted in the territory. On account of the unusually wet spring it will not be possible to plant the entire acreage that was originally signed up.

The Eighteenth Annual Farm Picnic will be held on July 15. The Irrigation District Board is sponsoring the picnic the same as last year.

Beyer Aune.

Huntley

During the week ending May 20 the maximum temperature was 76 and the minimum 37.

Although no precipitation was recorded at the station during the week, a heavy rain and hailstorm occurred on the east end of the Huntley project, extending from Ballantine to Pompeys Pillar. Hail damage was rather severe in some sections and will necessitate reseeding of a small acreage of beets. Other crops, including grains and alfalfa, were not sufficiently advanced to be damaged seriously and will probably recover from the hail injury.

Thinning of beets was started on the upper end of the project during the week. Stands have been affected in some fields by the prevalence of "black root," a disease that attacks the small beet seedlings. Seeding of field beans was under way on the project during the week. While the acreage seeded to this crop is lighter than in previous seasons, there has been a revival of interest due to recent increases in price. Beans are quoted locally at \$2.50 per cwt. as compared to \$1.00 at harvest last season.

Station work included the planting of potatoes in the irrigated rotations, the preparation of land for seeding oats, corn, and beans, and repairing fences and buildings.

Dan Hansen.

Newlands

The average maximum temperature for the two-week period ending May 27 was 69.8, with a maximum of 81 on May 25; the average minimum was 38.8, with a minimum of 29 on May 18. The mean temperature was 54.3. The average hourly wind movement was 3.66 miles. There was a trace of precipitation.

The prices of farm products on this project have increased a little since the last report. Butterfat is 23 cents a pound. San Francisco prices on beef are \$5.75 to \$6.50 per cwt., hogs $5\frac{1}{2}$ cents a pound, and lambs $6\frac{1}{2}$ cents. Eggs are $17\frac{1}{2}$ cents a dozen.

Work at the station has consisted of a continuance of land leveling operations, irrigating, cultivating ditches and roadways to free them of weeds, cultivating the orchard, and planting corn on the D, E, F, and J series. Six acres were seeded to ensilage corn to be used as winter silage in the dairy experiments.

During this period Dr. M. S. du Toit and Dr. Joubert, of the University of Stellenbosch, South Africa, visited this station for the purpose of observing our methods of reclaiming alkaline soils. Upon the suggestion of Dr. W. P. Kelley, of the Citrus Experiment Station, the visitors were taken to the Carson Sink. This is a vast area of several hundred square miles consisting of an adobe-like, impervious soil. Formerly most of this area was under a foot or so of water and constituted the outlet into which the Carson and Humboldt Rivers emptied. Since the storage of the water of the Carson River and the use of the Humboldt River water for irrigation, very little water is discharged into this sink and as a result large areas are now dry that were under water a few years ago. We undertook to drive over some of this area, but broke through what appeared to be solid ground. After trying in vain to extricate the automobile, two of us walked ten miles for aid, convinced a farmer he should take us to town, another 18 miles. Assistance was obtained in Fallon and the return trip made for the other two members of the party. As a result we were able to get back to Fallon at 5:00 a.m. after a night spent in the Carson Sink.

E. W. Knight.

Prosser

The maximum temperature for the week ending May 20 was 71, the minimum 35, and the greatest daily range 35° . The rainfall amounted to .23 inch.

Water was applied and soil samples taken on the alfalfa flood basin plots and on plots 4, 5, and 6 in the orchard. Most of the large alfalfa plots on field E-5 were also irrigated.

Livestock prices increased during the week. The price of U. S. No. 1 potatoes decreased \$1.00 per ton and are now \$12 to \$13 per ton in sacks, f.o.b. car. Hops increased 15 cents per pound and are now 75 cents per pound baled, f.o.b. car.

Mr. H. L. Westover, Senior Agronomist, Division of Forage Crops and Diseases, Bureau of Plant Industry, and Mr. H. A. Schöth, Associate Agronomist of the Oregon Agricultural Experiment Station, visited the station on May 18.

The maximum temperature for the week ending May 27 was 82, the minimum was 37, and the greatest daily range was 40° . The precipitation amounted to .37 inch.

Prosser (cont'd)

Corn plants emerged on the irrigation plots the first of the week, and soil samples were taken to determine the amount of moisture in the soil at that time. The potato plots were seeded May 26. Potatoes were planted about three weeks earlier this year than last year. Soil samples were taken on the first plot in the orchard before the second irrigation, which will start next week.

Contracts for this year's U. S. No. 1 alfalfa hay are being made for \$8 to \$9 per ton baled, f.o.b. car. The price of choice 165 to 220 pound hogs increased from \$4.75 to \$5.50 per cwt.

Carl A. Larson.

Scotts Bluff

The average maximum temperature for the week ending May 20 was 76, with a maximum of 82; the average minimum was 45, with a minimum of 34. The average hourly wind movement was 8.6 miles. The evaporation has amounted to .246 inch per day. No precipitation was recorded.

The week has been very favorable for crop growth, the sunshine and the temperature being about normal for this season of the year. The plowing and harrowing of the grass pastures in field B was completed. The planting of corn on the Walker tract was finished, and the corn plots in field K were prepared and planted. A time-of-digging test on an early maturing strain of Triumph potatoes was started in cooperation with Mr. Werner of the Nebraska Experiment Station, and the planting was completed this week.

The shipment of lambs from the valley has been completed for this season. At the end of the week the price for top lambs had gone above \$7 for the first time in many months. All other livestock and also dairy and poultry products have held or improved gains in prices.

Preparations for irrigation have gone on steadily and delivery of water has begun in some of the laterals. There is plenty of moisture in the subsoil, but grain and current-seeded alfalfa and sweet clover will need some assistance as the upper soil dries out faster than the root system develops.

The grading of the road along the south side of the farm has been completed. It is planned to put gravel on this road as soon as possible. The ditch along the road was lowered and a high fill eliminated, which will aid in keeping the road open during the winters. The station will assist in rebuilding the ditch.

The combined storage in the Pathfinder and Guernsey Reservoirs is about 600,000 acre-feet. About 1200 second-feet are being diverted to the two government canals. The Farmers' Canal has just turned water into the main canal, no water as yet having been delivered to the farms.

The average maximum temperature for the week ending May 27 was 76, with a maximum of 89; the average minimum was 44, with a minimum of 38. The average hourly wind movement was 12.5 miles. The evaporation amounted to an average of .232 inch daily. The precipitation was .6 inch, making a total for the growing season of 6.24 inches, which is about 40 per cent above normal.

There was a severe windstorm in practically all of western Nebraska on the 22d. Near North Platte it assumed the proportions of a tornado and several were killed. In the Panhandle section considerable property was damaged but no lives were lost. At the station there was no damage

Scotts Bluff (cont'd)

other than the wrecking of the haystacker. Little harm was done to crops, though in some sections beets were damaged and a few fields will have to be replanted.

Rebuilding the lateral along the south side of the station was completed during the week and water will be turned in immediately. The rain during the week was of great benefit to the small grain and the new seeding of alfalfa and sweet clover, and these will not need to be irrigated for some time.

The corn plots in field K were planted and the beets were cultivated for the first time. The plot of rye in rotation 27 was disked and plowed under for potatoes. The rye had made a growth of from 30 to 36 inches.

The storage of water in the Pathfinder and Guernsey Reservoirs is now approximately 650,000 acre-feet with an inflow of about 10,000 acre-feet per day. The supplementary reservoirs on the project are full.

Livestock prices continue to hold their gains, but poultry and dairy products have declined.. Eggs are now 10 cents a dozen and butter-fat 17 cents a pound with a 2-cent premium for sweet cream.

James A. Holden

Yuma

Report for two-week period ending May 13

The weather has continued to be unusually cool for this time of the year. The wind for the first two weeks of May has averaged 3.2 miles per hour, compared with 1.5 miles per hour for the same period in 1932. The maximum temperature for the week ending May 6 was 88, minimum 72, and mean 79.9. There was no precipitation. The maximum temperature for the week ending May 13 was 83, minimum 72, and mean 78. A rain of .04 inch occurred on the 11th.

The cool weather has so retarded the growth of cotton that chopping was delayed 19 days later this year than in 1932. The chopping of cotton in the rotations was started on the 9th. The wind during March and April has made it very difficult to obtain a stand of cotton. Some farmers have disked up their cotton, while others are retaining it with a stand of less than 70 per cent. Those farmers with sandy land have better stands.

Many farmers are cutting their alfalfa for the second time this season. The cool weather has aided in the production of an excellent quality of hay as there is less loss of leaves by the time the stems are dry.

Station work has consisted of trimming date palms, cutting and threshing barley, chopping cotton, plowing for grain sorghum, and general irrigating.

Max E. Crannell.

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June 3 and 10, 1933

No. 11

Belle Fourche

The week ending June 10 has been comparatively hot and all crops have made abnormally rapid growth. No precipitation occurred, and the soil is drying so rapidly that irrigation of crops on the Belle Fourche project was commenced the latter part of the week.

Ditches are being prepared for irrigating alfalfa on the station. Other work included cultivating corn and beets that have emerged, spraying fruit trees, seeding sweet clover in field I, and planting potatoes on all experimental plots.

Over 12,000 acres in this district are planted to sugar beets, which is an increase of roughly 50 per cent over the total acreage for last year. Heavy rains during the latter part of May necessitated the replanting of approximately 1,000 acres of sugar beets.

The maximum temperature for the week was 90 and the minimum 41°.

Beyer Aune.

Huntley

Warm, dry weather continued during the week ending June 3 and growing conditions were good. The maximum temperature was 93 and the minimum 37. The precipitation was .05 inch.

The first irrigation of alfalfa and early grains is under way, and these crops are well advanced. Range and dry-land crop conditions are good in most sections as a result of favorable rains in May.

Thinning of sugar beets is well advanced on all parts of the project, and in most sections stands and early prospects for this crop are good. An additional payment of 57 cents per ton for the 1932 crop was announced by the Great Western Sugar Company recently. This makes a total of \$5.07 so far paid for this crop. It appears probable that a small additional sum will be paid when the remainder of the sugar manufactured from the crop is marketed. The extra payment is very timely in financing the growing of this year's crops.

The price of Great Northern beans has advanced to \$2.75 per cwt., and there has been a steady movement of the crop to market at this price.

Station work during the week included irrigating alfalfa, harvesting grass hay and silage for the dairy, and cleaning and preparing irrigation ditches.

Director F. B. Linfield, of the Montana Experiment Station, visited the station on May 30.

Dan Hansen.

Newlands

The average maximum temperature for the two-week period ending June 10 was 81, with a maximum of 90 on May 29; the average minimum was 46.7, with a minimum of 41 on May 28. The mean temperature was 63.9. The average hourly wind movement was 3.40 miles. There was .05 of an inch of precipitation.

Work at the station has consisted of irrigating, hoeing out weeds, cultivating the orchard and garden, and finishing the leveling on the new plots E-8, 9, and 10. The orchard was sprayed for aphids. Many of the orchard plantings of last spring were killed by the extremely cold weather of December and January. This injury to trees and shrubs is quite prevalent over the project. Shrubs, such as Tamarix and Firethorn, that had never shown any winter injury were killed back to the ground.

The prices of farm products are a little higher. Beef has advanced to 6 cents, hogs to $5\frac{1}{2}$ cents, and lambs to $5\text{-}3\frac{3}{4}$ cents. Alfalfa hay, for which there is a little local demand, remains at \$4.00 a ton in the stack.

A normal crop of alfalfa this year is indicated. The cutting of the first crop will be a little late because of the late spring. The alfalfa weevil does not appear to be doing as much damage as it did last year. On the station last year only a 50 per cent yield was obtained on the first crop due to weevil damage. At the present time three Federal entomologists are located in this area studying the habits of the alfalfa weevil and the alfalfa aphid and the damages caused by these pests.

E. W. Knight.

Prosser

The maximum temperature for the week ending June 3 was 86, the minimum was 35, and the greatest daily range was 40° .

Work during the week consisted of irrigating the orchard plots and taking soil samples. Two wheat plots were also irrigated. Sage rats have been doing considerable damage to the newly sprouted corn on the irrigation plots. Some success in poisoning has been attained by soaking raisins in a strychnine solution and coating them with sugar.

Potatoes advanced \$4.00 per ton and are now selling for \$16 and \$17 per ton for U. S. No. 1's in sacks, f.o.b. car. Average large white eggs are 12 to 14 cents per dozen; butterfat, 22 cents per pound.

The maximum temperature for the week ending June 10 was 83, the minimum was 37, and the greatest daily range was 36 degrees. The rainfall amounted to .12 inch.

On June 10 663,000 acre-feet of water was impounded in the Yakima Valley Reclamation Service reservoirs. Last year the amount of water impounded on June 11 was 598,437 acre-feet. The runoff water in the Yakima River has been comparatively high. During the week an average of 10,000 c.f.s. has been flowing over the Sunnyside diversion dam about 45 miles west of Prosser. Last year it was found by measuring the flow of water in the river at Prosser that there was 5 per cent more water there than came over the Sunnyside diversion dam. Therefore, the volume of water in the river at Prosser is slightly more than that flowing over the Sunnyside diversion dam.

The second irrigation of the orchard plots receiving water every 30 days was completed during the week, and soil samples were taken. The irrigation corn plots are being hoed and the corn thinned. The potato

Prosser (cont'd)

plants on the irrigation plots emerged during the latter part of the week. There is a very good stand of wheat on the wheat plots and it is heading out rapidly. The wheat plot receiving only 12 acre-inches during the season has headed out long before the plots receiving more water.

The price of potatoes advanced \$2.00 per ton during the week. Wheat contracts are now being offered the growers for 45 cents per bushel. Contracts for No. 1 hay are for \$8.00 to \$9.00 per ton baled, f.o.b. car. Hop prices still remain 75 cents per pound baled, f.o.b. car. Hop growers in the vicinity of Moxee have been having considerable trouble with labor strikers. In the district one hop kiln was burned, for which blame has been placed upon labor strikers. Considerable labor is required at this time of the year to train the hops on the overhead wires.

Carl A. Larson.

Scotts Bluff

The average maximum temperature for the week ending June 3 was 84, with a maximum of 92; the average minimum was 50, with a minimum of 35°. The wind movement averaged 7.7 miles per hour. The daily evaporation amounted to .266 inch. No precipitation was recorded at the station, though rain was reported in other parts of the valley, accompanied in some cases by hailstorms of more or less severity. About one thousand acres of beets were reported damaged.

The painting of the buildings and some necessary repairs to the water and drainage system at the station was completed at the end of the week. The alfalfa plots in field K and the sweet clover plots in field E were plowed in preparation for potatoes. The growth of vegetation on these plots was not so heavy as it usually is. All of the work stock except the teams used in cultivating were taken to the pasture during the week, and some time was spent in fixing up the fences.

Thinning of beets has commenced in many sections of the valley. The Great Western Sugar Company has been carrying on quite an aggressive campaign for closer spacing, urging growers to insist that their laborers thin to 10 inches instead of the usual 12 inches as in the past. Probably better stands will result.

During the past winter there was an unusual amount of winter-killing of alfalfa, sweet clover, trees, and shrubs. Many fruit trees have been lost, and a very heavy loss has been reported among the Chinese elms.

James A. Holden.

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June 17 and 24, 1933

No. 12

Huntley

The maximum temperature during the two-week period ending June 17 was 101 and the minimum 44. The precipitation was .95 inch.

A rather severe rain and hailstorm on June 6 resulted in slight damage to crops in some sections of the project. The greatest injury occurred to beets. During the past week unseasonably hot and dry weather has prevailed and dry-land crops are beginning to suffer from drought.

Thinning of sugar beets on the project is nearing completion and the first irrigation of this crop has started. The general condition of the crop for this season is only fair due to storm injury and in some cases to late thinning.

Station work during the period included the harvest of first cutting alfalfa and the irrigation of alfalfa and small grains.

The maximum temperature during the week ending June 24 was 100 and the minimum 54. There was a trace of precipitation.

Hot and dry weather has continued, and the irrigation requirements were high. It was possible, however, to supply all demands for water. The main Huntley canal, which was designed originally to carry 450 second-feet of water, has been enlarged so that at present 625 second-feet can be delivered.

Harvest of the first-cutting alfalfa is about ten days earlier than usual and is nearing completion. All crops are making good growth where properly irrigated, and sugar beets especially are well advanced. Crops on dry land are suffering severely from drought, and yields will be low even though rain occurs in the next few days.

Station work during the week included harvest of first cutting alfalfa and irrigation of alfalfa and grains.

Dr. A. L. Strand, Prof. Clyde McKee, and Prof. H. E. Morris, of the Montana Experiment Station, visited the station.

Dan Hansen.

Howlands

The average maximum temperature for the two-week period ending June 24 was 90.4, with a maximum of 98 on June 13 and 14; the average minimum was 49, with a minimum of 44 on June 17 and 24. The mean temperature was 69.7. The average hourly wind movement was 2.48 miles. There was no precipitation.

The work at the station has consisted of irrigating, cultivating corn, cleaning ditches, and cutting the first crop of hay. At present the hay is curing in the field and will be stacked this week. Several days were devoted to surveying the north side of the station area, which

Newlands (cont'd)

is very rough, having several large sand-hills, and no attempt has ever been made to put it under cultivation. The present survey was undertaken to determine the extent of the area, the amount of dirt involved in any leveling operations that might be undertaken, and an estimate of the cost. It was found that the area embraced about 27 acres and that 47,000 yards of dirt would have to be moved. It would be a rather large undertaking to level this area, but such work would greatly enhance the value and appearance of the station.

The general condition of farm crops on the project is good. Some damage has been done by alfalfa weevil, but nothing to compare with the damage of last year. The unusually cold weather of the past winter has probably been a factor in its control this year. Rather mild weather continues for this time of year, which is perhaps another reason for the lesser damage being sustained. First crop haying is in progress throughout the project and should act as a further control.

Little change in the prices of farm products has occurred during this period.

E. W. Knight

Prosser

The maximum temperature for the week ending June 17 was 102, the minimum was 42, and the greatest daily range was 45°. The rainfall amounted to .01 of an inch. The maximum temperature was the highest on record this early in June. On June 7, 1931, the temperature reached 100°.

The maximum flow of water over the Sunnyside diversion dam in the Yakima River was 15,500 c.f.s. At the end of the week the flow was around 14,000 c.f.s. Near Kennewick, where the Yakima River empties into the Columbia River, the river has left its banks and flooded much farm land.

Farm work for the week consisted of cutting and weighing hay on the basin plots and irrigating. Plots 4, 5, and 6 in the orchard were irrigated and soil samples taken. The hoeing of corn plots was continued.

U. S. No. 1 potatoes declined \$2.00 per ton and are now \$15 to \$17 in sacks, f.o.b. car. Wheat is now 48 cents per bushel.

The maximum temperature for the week ending June 24 was 86, the minimum was 41, and the greatest daily range was 41°.

The flow of water in the Yakima River declined from 10,000 c.f.s. at the first of the week to 6,600 c.f.s. at the end of the week. There is 721,212 acre-feet of water impounded in the reservoirs at the present time. This shows an increase of almost 100,000 acre-feet more than was held last year on June 24. Increased storage facilities are afforded by the partial construction of the CleElum dam.

The alfalfa irrigation plots on fields E-5 and E-7 were cut and stacked. Comparing field-dry weights of hay from the various alfalfa plots, there is no great difference in yield from that of last year. Corn plots received their first irrigation and the first three wheat plots received their final irrigation.

The price of U. S. No. 1 new potatoes was \$25 to \$27 per ton the first of the week, but at the end of the week had increased to \$28 and \$30 per ton in sacks, f.o.b. car. The price of other farm commodities remained quite firm during the week.

Carl A. Larson.

Scotts Bluff

The average maximum temperature for the week ending June 10* was 88, with a maximum of 97; the average minimum was 54, with a minimum of 48°. There was only one rain during the week, amounting to .19 inch, which brought the total for the growing season to 6.43 inches. The daily evaporation amounted to an average of .275 inch. The average hourly wind movement was 7.4 miles.

The hot weather began somewhat earlier this month than usual. The rainfall for the first ten days of June was only about 18 per cent of normal, only the heavy rainfall of April and May bringing the totals up above the average. Small grain is needing water very badly, and though most of it is rather too small to irrigate to the best advantage, many of the farmers are doing so.

At the station the alfalfa plots in field K, the sweet clover plots in field E, and the various fields of alfalfa have been watered, and they are making splendid growth. The dairy cows have been turned on pasture. The hogs were placed in the alfalfa plot in rotation 65. Lambs and ewes are in the sweet clover pasture plots. There is almost a perfect stand in all of the pasture plots. The potato plots where alfalfa and sweet clover were plowed under have been ditched and irrigated. The vegetation turned under was not so heavy as it is sometimes.

The last truckload of hogs at the station was marketed at the end of the week, bringing \$4.05 per cwt. Temporarily, until the feeding yards are established on the Walker tract, the work with hogs will be closed except for the pigs used in the pasture tests.

The average maximum temperature for the week ending June 17 was 86, with a maximum of 97; the average minimum was 57, with a minimum of 53°. There was no precipitation. The evaporation amounted to a daily average of .244 inch. The wind movement has averaged 6.6 miles per hour.

As the weather has been hot and dry, the grain crops have commenced burning a little. Thinning of beets has been completed in K and E, and they are making a good growth so far with a very good stand. The grain plots in field E and the larger fields on the main farm and the Walker tract have been irrigated. Oats are beginning to head. Watering of the grain plots in K was started.

Potato planting has been started, and the indications are that the acreage will be a little larger, notwithstanding the low prices of the past two years. There is also a substantial increase in the beet acreage. An additional payment on the 1932 beet contract was made this week, averaging about 25 cents a ton.

The combined storage in the Pathfinder and Guernsey Reservoirs amounts to about 840,000 acre-feet, being practically the same as it was last year at this time.

There has been little change in the price of livestock. Feedstuffs continue to advance. The local retail price of wheat has increased from 65 cents to \$1.10 per hundred in the last month. This has resulted in an advance in the price of flour of nearly 40 per cent, but the price of bread has not been affected.

*This report was not received in time to include it in the previous issue where chronologically it belonged.

Scotts Bluff (cont'd)

The average maximum temperature for the week ending June 24 was 92, with a maximum of 97; the average minimum was 56, with a minimum of 54. The wind movement averaged 5.1 miles per hour. The precipitation was .11 inch, making a total of 6.54 inches for the growing season. The average daily evaporation amounted to .233 inch.

The first 20 days of June have been exceedingly dry and hot. The average maximum temperature for the 20 days was 88.2° as compared with 77.5 for last year and 85.7 for 1931, which was the hottest June shown on the records of the station. The rainfall for this period amounted to only .30 inch as compared with 1.99 inches last year, .45 inch in 1931 (which was the driest year on record here), and a 22-year average of 1.86 inches. However, the heavy rains of April and May had stored an abundant supply of moisture in the subsoil; and crops have made good growth with the exception of small grain, which in some cases had begun to burn and head out, but irrigation will correct this and give it a good chance to mature properly.

Local showers in various parts of the project have been of great benefit in the particular sections where they have occurred. On Dutch Flats north of Morrill there was more than 2 inches of precipitation, accompanied by hail, which damaged gardens slightly. At Torrington, Wyoming, there was a much heavier rain which flooded the lower parts of the town.

At the station the irrigation of grain plots in field K was completed the first of the week, and the crop seems to have recovered completely from the drought. The potato plots in fields C, K, and E were planted and irrigated, the top soil being so dry that it was necessary to water them up. Haying started the latter part of the week. The indications are that the yield will be rather light. There is a good stand on the current seeded plots.

Dairy products have gained some in price. At the creameries butterfat is bringing 18 and 21 cents and at the cheese factory it is bringing 27 cents per pound in the milk. Other prices have remained about stationary.

James A. Holden.

Umatilla

Under date of June 16 Mr. Dean reported as follows:

"The weather has remained unusually cool until this week. There were several rains during May. The feed canal is still running full, so that it has not yet been necessary to use the big pump. As the feed canal water carries so much more debris than the "A" canal, a great deal of trouble was caused in using the weed screens. After severe winds they cannot be used at all.

"Mr. H. L. Westover spent two days here in May going over the local alfalfa situation. He confirmed a previous diagnosis of alfalfa wilt on one of the best alfalfa farms in this vicinity. This farm is located on the river bottom near Stanfield and the soil is heavy. It is hoped that the disease will not prove serious on these sandy soils. So far as known this is the only case within 150 miles east or west. While Mr. Westover was here a meeting was held with the Farm Bureau regarding the standardizing of hardy alfalfas. Much interest was manifested, and it is thought that recommendations will be more closely followed than

Umatilla (cont'd)

they have been in the past. Good stands of alfalfa have been obtained on the land that was reseeded east of the station buildings. The row tests of alfalfa and sweet clover and the plots of grasses around the office, which are being conducted in cooperation with the Division of Forage Crops and Diseases, have only fair stands and will be reseeded in August.

"Mr. Lewis spent ten days here in early May, at which time a piece of land in the northwest corner was graded and ditched, using the check-drop system. The borders are 25, 37.5, and 50 feet wide, partly with protection of gravel on the ditch and partly without. Some preliminary irrigation work was also done on the rate of percolation and rate of application of water. It was found that this soil took water appreciably slower than does the soil on the old station site. It is believed that a considerable part of the winter-killing was due to too light applications of water last fall. Mr. Lewis plans to come here again in July.

"Directly south of the station buildings in part of what was sweet clover pasture last year an extensive planting of beans, tomatoes, and squash has been made for curly-top disorder studies. For protective purposes a temporary system of windbreaks was constructed, and they are proving effective in eliminating serious wind injury.

"The trees furnished by the Division of Foreign Plant Introduction arrived too late to be put out in their permanent places this year, so they are being grown in nursery rows this season. Practically all of them lived, and they should be very fine specimens in a few years.

"Two hundred and fifty turkeys have been obtained, and next week they will be put out on alfalfa range where they will remain until about September 1. At that time they will be split up into four or five lots for trials of various fattening rations.

"The sweet clover pasture is carrying two cows per acre with no hay and they are hardly keeping it down. Quite a bit of the fall-seeded rye on the rotation plots came through the winter. Cheat grass was so prevalent in the spring-seeded barley that this year's crop cannot be used for a uniform crop test."

M I S C E L L A N E O U S

Mr. C. S. Scofield returned to Washington on June 20 from California.

"Agricultural Investigations at the Huntley (Mont.) Field Station, 1927-1930," by Dan Hansen of the Division of Western Irrigation Agriculture, A. E. Seamans of the Division of Dry Land Agriculture, and D. V. Kopland of the Bureau of Dairy Industry, has been published as Technical Bulletin No. 353 of the U. S. Department of Agriculture.

The galley proof of "Pima Egyptian Cotton in the Irrigated Rotations at the Yuma (Arizona) Field Station" was read recently.

WEEKLY REPORTS

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Vol. XXXV

July 1 and 8, 1933

No. 13

Belle Fourche

During the week ending July 1 the maximum temperature was 95 and the minimum 54. The precipitation was .02 inch.

The month of June was exceptionally hot and dry. The total precipitation for the month was 1.22 inches, which is 1.43 inches below the average for the time records have been kept.

Harvest of the first cutting of alfalfa was completed during the week, and yields were just about average. The thinning of beets was completed, and they were furrowed for irrigation. Irrigation water has been run continuously, using two shifts of men.

On June 22 the 4-H Club Camp Boys and Girls met at the station. This year the camp was held for one day only. On June 23 Mr. John L. Emerson, of the Cheyenne Field Station, visited the station, and on June 29 Mr. J. Allen Clark, of the Division of Cereal Crops and Diseases.

Beyer Aune.

Huntley

The maximum temperature during the week ending July 8 was 101 and the minimum 45. The precipitation was .17 inch.

Precipitation during June and the first week in July has been less than one half the normal amount, while temperatures have been unusually high. Crops on dry land are badly affected by the drought and yields will be low. The condition of irrigated crops is below average.

While the supply of irrigation water is still adequate, there is a prospect of water shortage later in the season; and work is being started on the construction of a temporary diversion dam across the Yellowstone River at the Huntley canal intake.

Station work during the week included the irrigation of all crops and the cultivation of row crops. It has been necessary because of the drought and water shortage to work two shifts at irrigating.

The yields (tons per acre) of first cutting alfalfa in the irrigated rotations were as follows: Maximum 3.34, minimum 0.84, average 2.38.

Yields of first cutting alfalfa in variety test, Field O-III, 1933

	Variety	Tons per acre
Average of 3 plots	Grimm	2.94
" " 2 " "	Ladak	3.12
" " 2 " "	Common	2.41
" " 2 " "	Cossack	2.52
" " 2 " "	Baltic	2.47

Dan Hansen.

Newlands

The average maximum temperature for the two-week period ending July 8 was 86.8, with a maximum of 94 on July 5; the average minimum was 52.2, with a minimum of 44 on June 29. The mean temperature was 69.5. The average hourly wind movement was 2.58 miles. There was .01 of an inch of precipitation.

The weather conditions of the past two weeks have been more favorable for crop growth than the previous early summer weather. First crop haying operations on the project are about completed.

The continued rise in farm prices has given encouragement to local farmers. It is hoped that some outlet can be found for last season's surplus hay in order that the price of alfalfa will increase along with other farm commodities. The greater part of the irrigated area of this project is in alfalfa. Most of this hay must be consumed locally as the quarantine against Nevada hay entering the State of California is still in effect. A few thousand tons surplus in any one year naturally has a depressing effect on hay prices.

The work at the station has consisted of harvesting hay, irrigating, and cultivating corn.

The State Experiment Station has commenced the construction of several pens and houses to be used in conducting a turkey-feeding experiment. Also four acres of the K series will be fenced in order that a pasturing experiment can be undertaken to determine the effect of pasturing on the reclamation of alkaline soils. This is a part of the reclamation scheme of the K series that was formulated a year ago. At present this series is in fall rye and sweet clover. The rye will be cut and the clover and rye stubble pastured.

E. W. Knight.

Prosser

The maximum temperature for the week ending July 1 was 86, the minimum was 44, and the greatest daily range was 40°. The rainfall amounted to .29 inch.

Farm work during the week consisted of hoeing and cultivating corn. The alfalfa plots in field E-5 were irrigated. Soil moisture samples were taken on the irrigation plots in the apple orchard and the plots were irrigated.

The price of new potatoes declined \$5 per ton and is now \$32 to \$33 per ton in sacks, f.o.b. car. Hops declined 10 cents per pound and are now 65 cents per pound baled, f.o.b. car. The growers are being paid 54 cents per bushel for wheat.

The maximum temperature for the week ending July 8 was 96, the minimum was 42, and the greatest daily range was 45°. There was a trace of precipitation.

The amount of water impounded in the storage reservoirs of the Bureau of Reclamation is still increasing. On July 8 731,000 acre-feet were held in storage.

Orchard irrigation and soil sampling were continued this week. The first irrigation was applied to the potato plots. The alfalfa flood basins were irrigated and soil samples were taken.

During the week ending July 6 121 carloads of cherries were shipped from the valley. All the cherries in the lower valley around

Prosser (cont'd)

Prosser have been picked, but in the upper valley, around Yakima, where the season is later, picking has just begun. The cherry crop in the valley is exceedingly large this year. The first shipment of cherries returned 5 cents per pound to the growers.

U. S. No. 1 potatoes declined in price during the week and are now \$27 and \$28 per ton in sacks, f.o.b. car. Wheat advanced 8 cents per bushel and is now 62 cents. Hop prices also advanced 10 cents per pound and are now 75 cents per pound baled, f.o.b. car. Eggs are 14 to 16 cents per dozen and butterfat 23 cents per pound.

Carl A. Larson.

Scotts Bluff

The average maximum temperature for the week ending July 1 was 96, with a maximum of 101; the average minimum was 58, with a minimum of 51. The evaporation amounted to a daily average of .298 inch. The wind movement was 6 miles per hour. No precipitation was recorded.

The climatological record of June has been unusual. The average maximum and minimum temperatures have been the highest since records have been kept at the station, the maximum being 90 and the minimum 56°. The average temperature for the month was 73 as compared with 65.5 for 1932, 72 for 1931, and a 22-year average of 65.5°. There was also the smallest amount of rainfall for the month during this period, there having been only .30 inch as compared with 1.99 last year, .45 inch for 1931 (the dry year), and an average of 2.19 inches for the total period. The total to date for the growing season is 6.24 inches as compared with an average of 6.71 inches.

Notwithstanding the hot, dry weather all crops are making splendid growth. Most farmers are well up with their irrigation.

There has been a great deal of complaint in the central part of the Platte Valley regarding the water shortage there, and it is reported that several of the canals have closed their headgates for lack of water. The peak of storage in the Pathfinder Reservoir was reached a little sooner than usual this year, but it was practically the same as last year.

At the station the work consisted of irrigating and haying. The beets in fields K and E were given their first irrigation during the week. The alfalfa in the irrigated rotations, fields A and H, and on the Walker tract was cut and shocked, and stacking commenced July 1, a little later than it usually does. During the heavy wind a few weeks ago the stacker was blown over and broken. A new mast was procured and after a few hours' work the new timber gave away and a delay of about a day was caused until another new timber was obtained and rigged up.

The average maximum temperature for the week ending July 8 was 92, with a maximum of 98; the average minimum was 62, with a minimum of 59°. The precipitation amounted to .37 inch and came in three small showers, which did little good so far as the crops were concerned. The average daily evaporation was .235 inch. The wind movement averaged 5.5 miles per hour.

While the precipitation at the station and in adjacent territory was a little below normal, in other sections of the valley there were heavy rains, especially on the south side. Portions of Gering Valley received between 3 and 4 inches. The Dutch Flats and the Minitare neighborhood had good rains, the latter getting some hail.

Scotts Bluff (cont'd)

During the week the alfalfa hay was put in the stack in good condition. The small showers did not damage it and did not delay the work to any extent. The yield was very good, especially on the plots in field K. The alfalfa plots in rotations 42, 44, and 48 were reseeded this spring and no yield was obtained from them. Excluding these three the average yield from the other rotations was 2.28 tons per acre. The average for all the plots was 1.90 tons per acre.

Prices of farm products are again advancing. The elevators are paying 82 cents a bushel for wheat, and other grains have made smaller gains. Eggs are now bringing 9 cents per dozen; butterfat has advanced to 21 cents a pound for butterfat, with a 3-cent premium for sweet cream.

The storage in the Pathfinder and Guernsey Reservoirs is decreasing and the combined storage is approximately 785,000 acre-feet. The inflow is falling off rather rapidly, and the outflow is a little above normal in order to assist irrigators in the eastern end of the Platte Valley.

James A. Holden.

Umatilla

The maximum temperature for the week ending June 24* was 86 and the minimum was 46. There was no precipitation.

Messrs. P. M. Brandt, R. W. Morse, and I. R. Jones, of the Dairy Department of the Oregon Agricultural Experiment Station, spent a day on the station going over results to date and formulating plans for the dairy work. Mr. H. E. Cosby, of the Poultry Department of the Oregon Experiment Station, visited the station to look at the turkeys and plan the work for the rest of the season.

The water in the feed canal has dropped rapidly during the week, and it will be necessary to use water from the A canal for the next irrigation.

The routine work consisted of clipping the rye in the young alfalfa, irrigating, and weeding.

H. K. Dean.

Yuma

Report for the four-week period ending July 1.

The mean maximum temperature for June was 101.5, which is the same as the 10-year mean, and .5 below the 64-year average, as reported by James H. Gordon, local meteorologist. The maximum for the month was 114 and the minimum for the month was 51. The mean minimum was 62.5 and the greatest daily range 55. There was .04 inch of precipitation on the 16th and a trace on the 21st. The 64 years average rainfall is .02 inch. During the month 27 days were clear, 3 were partly cloudy, and one was cloudy. The maximum temperature for the week ending July 1 was 107, the minimum was 59, and the greatest daily range 45.

The wind movement during June has been light, and this is favorable for a good set of alfalfa seed. The normal acreage of alfalfa that is devoted to seed production in the Yuma Valley will be harvested this year. The farmers expect a fair price for the seed as the hold-over supply has been about cleaned up. The alfalfa is making its maximum growth later than normal. The second crop of hay was light, but the third cutting made up the loss. The heavy late growth has caused considerable lodging in many fields of seed.

*This report was received too late to include it in the previous issue.

Yuma (cont'd)

Cotton is making good growth after a late start. Many fields have a poor stand, especially on the heavy soil. The high winds during planting time dried the soil out before the plants had a chance to root sufficiently deep. A very poor stand has been obtained on many of the plots on the rotations this year.

A meeting of some of the cotton farmers with Mr. Frank Beyschlag, County Agent, was held at the station during the week to discuss the Agricultural Adjustment Act in regard to the reduction of cotton acreage. Similar meetings have been held by Mr. Blackledge, County Agent, in lower Yuma County. The number of farmers who have signed up has not been reported by the various committees.

The barley on the rotations was threshed the first of the month. The yields as a whole were good, which was partly due to the excellent stand and a favorable season. The yields of barley on all rotations were on a decline up to 1932, when 13 of the 16 rotations made an increase in yield over the preceding year. This year the barley following alfalfa in the rotation shows an increased yield.

Station work during the month consisted of trimming date palms, hoeing cotton, cleaning ditches, threshing barley, plowing, planting grain sorghum, cleaning up the lawns, making alfalfa hay, and general irrigating.

A summary of barley yields in the irrigated rotations at the U. S. Yuma Field Station from 1923 to 1933, inclusive.

Rotation:	Yields, bushels per acre											
No.	:1923:	1924:	1925:	1926:	1927:	1928:	1929:	1930:	1931:	1932:	1933:	Average
8	:64.8:	30.8:	16.5:	23.0:	11.9:	9.5:	8.5:	13.3:	10.8:	9.2:	11.3:	19.1
9	:49.2:	25.4:	21.6:	30.8:	10.5:	12.4:	7.8:	10.8:	8.3:	12.8:	19.3:	18.1
11	:22.8:	26.0:	22.2:	16.3:	20.0:	12.3:	15.7:	19.2:	18.8:	20.6:	18.3:	19.3
12	:18.9:	15.0:	2.9:	6.3:	7.8:	3.5:	3.8:	2.9:	4.4:	2.2:	11.0:	7.2
24	:15.0:	4.6:	7.1:	8.2:	5.7:	5.9:	4.9:	2.7:	3.4:	7.1:	3.3:	6.2
26	: -- :	-- :	-- :	-- :	-- :	46.1:	43.1:	19.2:	11.3:	17.4:	9.2:	24.4
28	: -- :	-- :	-- :	-- :	-- :	49.8:	30.4:	8.9:	8.4:	13.9:	13.3:	20.8
30	: 9.7:	10.4:	2.8:	6.4:	4.3:	6.7:	2.9:	4.6:	7.9:	5.3:	8.8:	6.3
31-1	: -- :	-- :	-- :	-- :	-- :	50.1:	15.8:	17.5:	12.1:	9.6:	3.2:	18.1
31-2	: -- :	-- :	-- :	-- :	-- :	47.3:	11.6:	13.7:	10.2:	14.6:	12.5:	18.3
32	: -- :	-- :	-- :	-- :	-- :	62.7:	46.7:	50.0:	36.2:	38.3:	47.0:	46.8
42	:46.5:	23.2:	14.3:	17.9:	16.4:	17.2:	11.2:	29.3:	11.6:	26.5:	24.1:	21.7
46	:45.3:	25.3:	31.0:	43.3:	30.3:	19.7:	24.8:	31.6:	28.7:	34.3:	46.4:	32.8
50	:28.7:	17.4:	31.5:	22.7:	19.7:	18.3:	22.6:	28.8:	21.1:	21.8:	50.2:	26.6
54	: -- :	-- :	-- :	-- :	-- :	39.8:	30.3:	14.5:	9.3:	24.2:	19.6:	22.9
56	: -- :	-- :	-- :	-- :	-- :	43.2:	45.2:	16.3:	13.3:	34.2:	17.3:	28.2
60	:24.6:	19.0:	17.9:	26.1:	21.2:	18.0:	24.4:	21.1:	28.8:	34.3:	43.5:	25.3
63	:27.3:	12.5:	6.1:	20.6:	10.8:	9.3:	16.1:	9.5:	12.8:	14.0:	19.3:	14.4
65	: -- :	-- :	-- :	-- :	-- :	37.3:	46.0:	19.0:	12.8:	7.5:	23.8:	24.4
Maximum	:64.8:	30.8:	31.5:	43.3:	30.3:	62.7:	46.7:	50.0:	36.2:	38.3:	50.2:	46.8
Minimum	: 9.7:	4.6:	2.8:	6.3:	4.3:	3.5:	2.9:	2.9:	3.4:	2.2:	3.2:	6.2
Average	:32.1:	19.1:	15.8:	22.2:	14.4:	26.8:	11.6:	17.5:	14.2:	18.3:	20.6:	21.1

Max E. Crannell.

M I S C E L L A N E O U S

Mr. S. H. Hastings, Principal Agronomist, left Washington on July 8 for the purpose of visiting the field stations of this division in the Central West and in the Northwest.

WEEKLY REPORTS

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July 15 and 22, 1933

No. 14

Belle Fourche

During the week ending July 15 the maximum temperature was 103 and the minimum 55. The precipitation was .80 inch.

During the week the alfalfa in field A was irrigated. All the potatoes were sprayed with paris green and bordeaux mixture.

The eighteenth annual farm picnic was held on July 15. The weather conditions were ideal. Over 1100 cars passed through the gate during the day and evening, and more than 3,000 people attended.

Mr. S. H. Hastings, of Washington, D. C.; Mr. O. K. Barnes, of the Scotts Bluff Field Station; and Dean C. Larsen, of the South Dakota Agricultural College, visited the station during the week.

During the week ending July 22 the maximum temperature was 97 and the minimum was 53. There was no precipitation.

All the potatoes, beets, and corn, and the alfalfa in west P, O, and P were irrigated during the week. Most of the barley varieties were harvested, and all were in good condition and should give excellent yields. The rest of the time was used in cleaning up after the farm picnic.

Beyer Aune.

Huntley

The maximum temperature recorded during the week ending July 22 was 98 and the minimum 48. While temperatures were not so high as during previous weeks, there was no precipitation and crops on dry land as well as ranges are rapidly drying out. Low water in the Yellowstone River has made it impossible to fill canals to capacity, and work was started on raising the temporary diversion dam as well as on the construction of a wing dam at the Huntley canal intake. The water shortage has not yet become acute and generally the crops on the project are in fairly good condition.

Two rather serious breaks in the Billings Bench canal have stopped water delivery for a total of ten days during the month; consequently, crops on that project are not in the best condition.

The annual Huntley project picnic was held on July 22 with an attendance of perhaps 1,500 people. Speakers at the meeting were Senator B. K. Wheeler, Director F. B. Linfield, and Prof. P. L. Slagsvold, of the Montana Agricultural Experiment Station. In addition to the speaking, other events included the usual picnic sports program in the afternoon and a dance in the evening.

Station work during the week included the harvest of dry-land grains and irrigating all crops under the ditch.

Huntley (cont'd)

Station visitors were Mr. S. H. Hastings, Director F. B. Linfield of the Montana Experiment Station, and Beyer Aune of the Belle Fourche Field Station.

Dan Hansen.

Newlands

The average maximum temperature for the two-week period ending July 22 was 95.5, with a maximum of 100 on July 14 and 15; the average minimum was 57.3, with a minimum of 48 on July 11. The mean temperature was 76.4. The average hourly wind movement was 2.27 miles. There was no precipitation.

First crop haying has been completed on the project. The crop yield is somewhat smaller than the average. The cold spring weather retarded the growth, making the first crop haying a little later than normal. Likewise the harvest of the second crop will be a little late.

On the field station the average yield of the first crop of hay from the different plots was 1.86 tons per acre. The maximum yield was 3.16 tons and the minimum yield was 1.19 tons per acre.

Butterfat is selling at 25 cents a pound, eggs at 19½ cents a dozen, wheat at \$30 a ton, and hay at \$4.00 a ton in the stack. At the present time little grain has been harvested.

The field work at the station has consisted of irrigating, cultivating, and repair work to ditches, etc. At present barley is being harvested and threshed.

E. W. Knight.

Prosser

The maximum temperature for the week ending July 15 was 100, the minimum was 45, and the greatest daily range was 41°. Rainfall amounted to .07 inch, which fell in one shower.

A field day is being planned for the station on July 21.

Farm work consisted of irrigating potatoes and corn and cleaning weeds away from flumes on irrigation plots.

Owing to the reported potato shortage in the Middle West, the price of No. 1 new potatoes increased to \$33 and \$35 per ton in sacks, f.o.b. car. This is an increase of \$6.00 per ton over the previous week. Wheat prices rose to 77 cents per bushel on the new contracts. Oats are returning \$24 per ton and barley \$18 per ton to the grower. The price of hops declined to 57 cents per pound. Butterfat is now 24 cents per pound. Prices for livestock have remained steady.

The maximum temperature for the week ending July 22 was 97, the minimum was 47, and the greatest daily range was 42°.

The annual Field Day was held at the station on July 21. The attendance was much smaller than in previous years.

Farm work for the week consisted of irrigating and taking soil samples on plots 4, 5, and 6 in the orchard, which receive water every 15 days.

For the week ending July 20 174 carloads of produce were shipped from the valley as compared with 128 carloads for the corresponding period last year. The increase in carloads this year was caused by the heavier shipments of potatoes and cherries.

Prosser (cont'd)

U. S. No. 1 new potatoes are selling for \$30 per ton in sacks f.o.b. car. Wheat declined from 80 cents to 52 cents per bushel during the week.

Carl A. Larson.

Scotts Bluff

The average maximum temperature for the week ending July 15 was 94°, with a maximum of 101; the average minimum was 62, with a minimum of 53. The average wind movement was 5.8 miles per hour. The evaporation was .316 inch daily. The precipitation amounted to .35 inch.

Local showers at various places in the valley were in some sections accompanied by hail. Owing to the numerous hailstorms already this season, it is expected that harvest will commence a little early. It will probably be started next week over all the valley, although the grain will not be thoroughly ripened then.

The grain plots in fields K and E were irrigated during the week, water being run continuously. The grain has made good growth and is ripening fast. There will be some damage from grasshoppers this year, especially in the fields of grain that adjoin alfalfa fields. The stacking of hay was completed.

Mr. S. H. Hastings, of the Washington office, visited the station during the week. Dean W. W. Burr, of the Nebraska Agricultural College, met him here for a conference on work for the ensuing year. Superintendent W. P. Snyder, of the North Platte Station, and W. P. Snyder, Jr., accompanied Dean Burr.

The average maximum temperature for the week ending July 22 was 91, with a maximum of 100; the average minimum was 60, with a minimum of 49. The precipitation amounted to .53 inch, bringing the total for the year up to 7.79 inches. The wind movement was 5.1 miles per hour, and the evaporation averaged .266 inch daily.

The hot weather continued throughout the week. There was a good rain the first of the week--.46 inch--and a light shower at the end. A little hail accompanied the first rain but not in damaging quantities.

Harvesting of grain is general over the valley. At the station all of the grain was cut and shocked. Water was run continuously during the week, getting over the corn and most of the alfalfa. Potatoes in fields E and K have been cultivated.

Early potatoes are bringing from 3 to 4 cents a pound. Not much digging is being done as yet, but it will start within a short time.

The combined storage in the Pathfinder and Guernsey reservoirs is about 650,000 acre-feet, which is some 80,000 acre-feet short of last year's storage at this time.

James A. Holden.

M I S C E L L A N E O U S

A manuscript entitled "Agricultural Investigations at the Belle Fourche (South Dakota) Field Station, 1926-1932" has been submitted for publication as a technical bulletin of the Department.

1. The first part of the report is a summary of the work done during the year. It is a brief statement of the results of the work, and is intended to give a general idea of the progress made. It is not a detailed account of the work, but a summary of the main results.

TABLE I

The following table gives a summary of the results of the work done during the year. It is a brief statement of the results of the work, and is intended to give a general idea of the progress made. It is not a detailed account of the work, but a summary of the main results.

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WEEKLY REPORTS

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July 29 and August 5, 1933

No. 15

Huntley

Hot and dry weather continued during the two-week period ending August 5 with maximum temperatures above 100 on most days. The maximum temperature was 107 and the minimum 46. The precipitation was .15 inch. The total rainfall during July was .24 inch, while the normal for that month is 1.23 inches.

Irrigation requirements for both June and July have been unusually high, although so far there has been no very serious shortage of water in the Huntley canal, and crops continue to be in good condition. Repairs to the temporary diversion dam have made it possible to deliver nearly the capacity head in the canal.

Threshing of winter wheat is under way on dry lands adjacent to the project. Yields are reported to range from 5 bushels to 25 bushels per acre. Second cutting alfalfa is being stacked, and the yield is good.

Station work during the week included irrigation of root crops and harvest of second cutting alfalfa and irrigated grains.

Hon. Roy E. Ayers, Representative in Congress from this district, visited the station on August 5. Other station visitors were H. E. Morris and James Pepper of the Montana Agricultural Experiment Station.

Dan Hansen.

Prosser

The maximum temperature for the week ending July 29 was 101, the minimum was 48, and the greatest daily range was 45°.

The apple orchard, alfalfa, and potato plots were irrigated. The harvest of the wheat plots was started at the end of the week. An average yield of 2.52 tons per acre of air-dry hay was obtained from the first cutting of the five plots of alfalfa. There was no decrease in yield due to winter-killing in the first cutting as compared with the first cutting last year.

Alfalfa hay increased \$1.00 per ton and is now returning \$10 to \$11 to the grower f.o.b. car. Butterfat has dropped to 20 cents per pound. Oats are now \$25 per ton.

Mr. S. H. Hastings arrived at the station on July 22 and left on July 24 for the Umatilla Field Station in Oregon.

The maximum temperature for the week ending August 5 was 93, the minimum was 45, and the greatest daily range was 44°. The rainfall amounted to .17 inch.

During the week the alfalfa plots on Field E-5 were cut, but yields were not recorded because of the rain the latter part of the week.

Prosser (cont'd)

The final irrigation of the corn plots was begun. Irrigation of the plots in the apple orchard was continued through the week. Harvesting of wheat plots was completed, and the wheat will be threshed as soon as possible.

Carl A. Larson.

Newlands

The average maximum temperature for the two-week period ending August 5 was 92.7, with a maximum of 100 on July 25; the average minimum was 56.2, with a minimum of 44 on August 4. The mean temperature was 74.5. The average hourly wind movement was 2.46 miles. There was no precipitation.

Market prices: Alfalfa hay, \$6.00 a ton delivered; butterfat, 23 cents a pound; eggs, 19 cents a dozen; beef, 5 cents; lambs, 6 and $6\frac{1}{2}$ cents; wheat, \$30 a ton; and barley, \$25 a ton.

The grain harvest is well under way on the project. The harvest of the entire grain crop at the station should be finished in a day or two. The Nevada Agricultural Experiment Station is furnishing the necessary labor to do this work. Operating with a reduced labor force has made it necessary to neglect certain routine work at this station. However, an endeavor is being made to care for those activities that have been considered of the most importance. The newly seeded areas are being irrigated, and all crops will be harvested.

E. W. Knight.

Scotts Bluff

The average maximum temperature for the week ending July 29 was 97°, with a maximum of 106; the average minimum was 62, with a minimum of 57. No rainfall was recorded at the station. The average wind movement was 4.4 miles per hour. The evaporation amounted to .258 inch per day.

The past week has been the hottest ever experienced at the station. The growth of crops has been rapid. The alfalfa has made a very rapid growth where it has been watered, and in some sections the cutting of the second crop has been started.

Water has been run continuously throughout the week, and the beets and corn in fields K and E have been irrigated. Weeds have been very troublesome this season, and it has been necessary to employ some extra labor to clean up the plots and fields.

Grain prices have strengthened and some stored grain has been sold. However, not many of the farmers have any surplus for sale. Potatoes are selling around \$3.00 per hundredweight.

The average maximum temperature for the week ending August 5 was 82, with a maximum of 96; the average minimum was 58, with a minimum of 55. The precipitation amounted to .13 inch, making a total for the year of 7.92 inches, still below normal. The daily average evaporation amounted to .216 inch. The wind movement was 7.5 miles per hour.

July, like June, was the hottest on record at the station, the average temperature for the month being $77\frac{1}{2}^{\circ}$ as compared with $75\frac{1}{2}^{\circ}$ in 1931. The rainfall was 1.33 inches as compared with an average of 1.61. There was no break in the water service, and crops have made good growth.

The grain crop was threshed during the week. The yield of grain

Scotts Bluff (cont'd)

was light and below normal, which in some cases was due to grasshopper damage. The maximum oat yield in the rotations was 73.1 bushels per acre from rotation 71. The oats plot in the maximum yield rotation (121) yielded at the rate of 86.4 bushels an acre. The minimum yield was 17.5 bushels from rotation 11 in field E. The average per acre yield of oats in field K was 44 bushels and in field E 41.3 bushels. Wheat yields varied from 8 bushels an acre in rotation 7 (where the straw is returned) to 31.1 bushels in rotation 48 (wheat following 2 years of alfalfa). The average yield of wheat was 13.1 bushels per acre.

The combined storage in Pathfinder and Guernsey reservoirs amounts to 535,000 acre-feet.

James A. Holden.

Yuma

The maximum temperature for the two-week period ending July 29 was 115 and the minimum 71. There was a trace of precipitation. The mean maximum for the month of July was 108.1 and the mean minimum 75.4. There was a trace of precipitation. These temperatures are about 2° above normal.

The combination of high temperature and humidity during the last half of July has been unfavorable to the cotton crop. A light middle crop of bolls will result from excessive shedding of squares and small bolls. As a result of the cotton acreage reduction plan 2,000 acres are to be taken out of production. The total on the project is about 16,000 acres.

Alfalfa seed harvesting on the project is progressing under very favorable conditions. Rainstorms have threatened, but no moisture has fallen to interfere with cutting or threshing. The early reports on seed yields indicated a light crop, but later threshings show an improvement. The estimated production of alfalfa seed for the project is 2,500,000 pounds, which will be harvested from approximately 8,500 acres. The seed market at present is not active. Some sales have been made on a 10 to 11 cents per pound basis.

The 1933 cantaloup shipping season has closed with a total of 454 cars moved. As a whole the season and prices were very satisfactory.

Station work during the past two weeks has included the harvesting of alfalfa and sweet clover seed, threshing sugar beet seed, planting field beans, thinning and cultivating grain sorghums, hoeing and roguing cotton, general hoeing and irrigating.

The maximum temperature for the week ending August 5 was 110, minimum 64, and greatest daily range 42. No precipitation was recorded. The minimum temperature on the last four days was below 70, which afforded relief from the hot nights of the previous two weeks when minimum temperatures of above 80 were recorded.

Wind and thunder storms have threatened on several occasions, but the alfalfa seed threshing operations on the project have not been interrupted. Most of the crop is being threshed from the shock. This manner of harvesting requires favorable weather. The remainder of the crop is being stacked. The seed market is fairly active, the prices offered varying from 8 to 11 cents a pound.

The cooler weather has helped cotton. It appears that the shedding of squares and small bolls has diminished during the period of

Yuma (cont'd)

cooler nights. Orders have been given to the growers who signed acreage reduction contracts to plow up their assigned acreage. Most of this land will be fallowed, releveled, and planted to alfalfa early this fall. On some of it grain sorghum will be planted immediately for stock and poultry feed.

The flow of the Colorado River has dropped below 6,000 second-feet. The quality of the water indicates that some of it is coming from rainstorms on the lower watershed.

Cotton on the station is being watered each week, grain sorghums and corn every other week. Alfalfa is irrigated just often enough to keep the plants alive. This drying process is followed at this time of the year to keep down the growth of water grass and sandburs during the semi-dormant period of alfalfa in the summer. The irrigation runs at the station are from 12 to 20 hours continuous flow of a 12 second-foot head. From 15 to 30 acres are covered during each run.

Messrs. T. H. Kearney, Geo. J. Harrison, and H. J. Webber, Jr., were station visitors on August 1. The plantings of Pima cotton on the project were inspected.

E. G. Noble.

M I S C E L L A N E O U S

Mr. S. H. Hastings, Principal Agronomist, returned to Washington on August 7 from a western field trip.

WEEKLY REPORTS

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Huntley

The maximum temperature during the week ending August 19 was 101 and the minimum was 50. There was a trace of precipitation.

Hot and dry weather prevailed during the week with consequent continued heavy demand for irrigation water. Delivery of water has been on a partial rotation basis for the past month due to inability to fill canals to capacity. The shortage of water, however, has not been acute enough to affect crops seriously.

Station work during the week included threshing of dry land grains as well as early irrigated grains. Yields on the dry land plots were low. The average yield of winter wheat was 6.8 bushels per acre.

Dr. C. E. Leighty and Mr. J. M. Stephens, of the Division of Dry Land Agriculture, visited the station on August 17.

The yields of the second cutting of alfalfa in the irrigated rotations varied from a maximum of 3.18 tons per acre in rotation 42 to a minimum of .96 ton in rotation 69. The average yield was 1.98 tons per acre.

The yields of the second cutting of alfalfa in the variety test, field O-III, were as follows:

			Variety	Tons per acre
Average	3	plots	Grimm	2.43
"	2	"	Ladak	2.31
"	2	"	Common	2.31
"	2	"	Cossack	2.02
"	2	"	Baltic	1.95

Dan Hansen.

Newlands

The average maximum temperature for the two-week period ending August 19 was 94.4, with a maximum of 101 on August 12; the average minimum was 54.6, with a minimum of 45 on August 6. The mean temperature was 74.5. The average hourly wind movement was 2.28 miles. There was .04 inch of precipitation.

The usual summer work of harvesting crops and irrigating has continued throughout this period. A small crew of laborers have threshed the grain and harvested the second crop of hay. The yields of the second crop of hay on the station varied from a maximum of 2.80 to a minimum of 1.21 with an average of 1.68 tons per acre. One general irrigation was given.

The prices being offered for local farm products are not very encouraging: \$4.00 a ton for hay in the stack, 20 cents a pound for butterfat, and \$30 a ton for wheat.

E. W. Knight.

Prosser

The maximum temperature for the week ending August 12 was 100, the minimum was 48, and the greatest daily range was 48°. The average temperature for the last six days of the week was 97°.

The hay from plots on field E-5 was weighed. A submerged orifice used to measure water for the orchard plots was rechecked and some corrections made. Two pits 6 feet deep were dug in the orchard to study hardpan layers and root penetration.

Wheat was threshed from the plots on field E-9. The plot receiving a treatment of approximately 30 acre-inches of water in three equal irrigations produced 73.5 bushels per acre. Plot 5, receiving a treatment of approximately 12 acre-inches including one irrigation, produced 47 bushels per acre. The remaining three plots receiving irrigations ranging from 36 acre-inches to 18 acre-inches produced from 65 to 69 bushels per acre. Larger yields were obtained this year on the irrigation plots because 3 bushels of wheat were seeded to the acre instead of 2 bushels seeded last year.

Market prices: Eggs, 15 to 17 cents per dozen for average large whites; hogs, 160-200 pound class, \$5.50 per cwt.; wheat, 60 cents per bushel.

The maximum temperature for the week ending August 19 was 102, the minimum was 55, and the greatest daily range was 45°. The mean maximum temperature was 97°. The 18th of August marked the end of twelve consecutive days with maximum temperatures above 90°. This was the warmest weather experienced in the valley for 24 years.

There was very little change in prices for farm produce during the week. Butterfat declined 2 cents and is now 17 cents per pound.

Carl A. Larson.

Scotts Bluff

The average maximum temperature for the week ending August 12 was 93, with a maximum of 96; the average minimum was 58, with a minimum of 55. At the station no precipitation was recorded. The evaporation has averaged .239 inch daily. The wind movement has been 4.3 miles per hour.

During the week the second cutting of hay was stacked. The yield was considerably lighter than the first cutting, which was unusually heavy, and was .12 of a ton lighter than the second cutting last year. The maximum yield for the second cutting was 1.79 tons per acre from rotation 65, the minimum was .94 ton from rotation 8, and the average yield was 1.40 tons per acre.

During the week much time has been given to preparation for the annual picnic to be held on Thursday of next week. The picnic was delayed a week this year in order that threshing and harvest of the second cutting of alfalfa might be finished, thus permitting a larger number of the farmers to attend.

The digging of the early potato crop is about completed. Much of the crop was sold locally and trucked out to nearby centers at prices ranging from \$1.59 to \$3.00 per hundred. A few cars have been shipped out at about \$2.00 a hundred. At present it appears that the late potato crop will be an average one despite the poor stands in many fields and the unfavorable weather conditions.

Scotts Bluff (cont'd)

In the dry land wheat section there have been yields of 20 to 25 bushels per acre, and some wheat has been sold at 82 cents a bushel. Most of the wheat crop is being stored. The above yields, however, are exceptionally heavy. The dry land yield shows a very low average. In the irrigated section the yields have been very low.

Butterfat has declined until at present it is bringing only 15 cents per pound. Creamery men claim that the reason for the low price is that when butter gets above 25 cents per pound the consumption of butter substitutes increases to such an extent that it is necessary to reduce the price of butter and butterfat.

Water service has been good during the week. Notwithstanding the heavy demand which keeps the canal at its maximum capacity, no trouble has been experienced.

The average maximum temperature for the week ending August 19 was 89, with a maximum of 96; the average minimum was 54, with a minimum of 46. The wind movement amounted to 4.7 miles per hour. The evaporation was .215 inch daily. No precipitation was recorded.

The week was largely taken up with preparations for the picnic, which was held on August 17. The attendance this year was smaller than usual, and was made up principally of club boys and girls and younger people.

The annual potato tour was held on August 16, and the people making this trip spent most of the afternoon at the station. The attendance on this tour was very large, which probably accounted for the reduction in the number of farmers at the picnic the next day.

Water was run the first half of the week, and the irrigation of all crops is well in hand.

The combined storage in the Pathfinder and Guernsey reservoirs is approximately 413,000 acre-feet. This insures that there will be no shortage of water, though the ditch companies are limiting the water in some cases. Any tendency to waste water or not use it beneficially results in decreased heads.

James A. Holden.

Yuma

The maximum temperature for the week ending August 12 was 119, minimum 79, and the greatest daily range 39. No precipitation was recorded. The extremely high temperatures recorded during the latter part of the week were accompanied by high humidity. The absolute maximum for the station is 120. This was recorded in May 1910. Storms continue to threaten, but no moisture has fallen and very little wind movement has occurred.

Alfalfa threshing continues with yields running higher than expectations, some growers reporting 450 pounds per acre. The beneficial use of superphosphate on alfalfa has been demonstrated this season, particularly on the lighter soils. Treated fields are producing higher than normal yields. The general use of superphosphate on alfalfa both for higher hay and seed yields is the result of tests made at the station during the period 1920 to 1926. A few sales of seed are being made on the basis of 9 cents a pound. Most of the growers are holding for higher prices.

Yuma (cont'd)

The flow of the Colorado River has been increased by rains upstream. Discharge readings at Yuma have shown an increase from 3,500 to 6,000 second-feet.

Imperial County has been using Reconstruction Finance Corporation relief funds for improving the roads in the Lard district. The highway has been graded from Yuma to Laguna Dam. Graveling operations have been started with intention of surfacing the entire route. Everyone is grateful for this prospect of better roads.

Station work during the week included the repairing of fences, cutting alfalfa seed, hoeing cotton plots, roguing sandburs in alfalfa plots, cultivating milo, and general irrigating.

The maximum temperature for the week ending August 19 was 116, mean maximum 105.3, minimum 74, mean minimum 77.6, and the greatest daily range 35. The precipitation was .5 inch.

The general storm of the 14th covered most of Imperial and Yuma counties. Maximum temperatures dropped below 100 for two days, but thereafter high temperatures and humidity were resumed.

Some damage to alfalfa seed in the shock was reported, but the bulk of the threshing had been completed before the rain.

The first bale of cotton of the 1933 crop was ginned on August 12. This bale was picked from a field of Stoneville, an early variety of upland cotton.

Station work during the week included the threshing of alfalfa seed, mowing lawns, burning date prunings, repairing fences, general hoeing, cultivating, and irrigating.

Dr. T. H. Kearney and Mr. C. J. King visited the station on August 19.

E. G. Noble.

W E E K L Y R E P O R T S

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Huntley

The maximum temperature during the two-week period ending September 2 was 88 and the minimum was 42. The precipitation amounted to 3.30 inches.

The rainfall on August 24 to 27 was the first rain of much consequence for nearly three months. This rain came slowly so that there was no run-off and was of much benefit to dry lands and range, and it also relieved the demand for irrigation water. Further irrigation will not be necessary except possibly for sugar beets.

The harvest of the beet crop, which promises to be the heaviest on record, will begin on September 20. The harvest of field beans is well under way on the project. Beans that were harvested and in field piles before the rain were rather badly damaged. The price of Great Northern beans is \$3.00 per cwt.

Station work during this period included harvest of grains in the irrigated rotations and the irrigation of alfalfa, sugar beets, and stubble ground.

Mr. J. H. Dickson, of the Montana Experiment Station, was a visitor on September 1.

Dan Hansen.

Prosser

The maximum temperature during the week ending August 26 was 94, the minimum was 46, and the greatest daily range was 43°.

Field E-5, in which the alfalfa plots are located, was given the final irrigation of the season. The supply water and the surface run-off were measured by water-stage recorders. A number of soil samples were taken in strawberry clover pastures near Sunnyside.

Labor troubles were so serious in orchards near Yakima that two companies of National Guardsmen were called to disperse agitators who were picketing orchards. Prior to the call of the militia there were several pitched battles with farmers and strikers. At the present time State police have the situation pretty well in hand.

Markets: Potatoes, \$23 per ton in sacks, f.o.b. car; butterfat, 19 cents per pound; barley and oats, \$21 and \$16 per ton, respectively, f.o.b. car; wheat, 60 cents per bushel.

Produce shipments from the valley are much lower than last year for the same period. In 1932 there were 2478 carloads shipped up to August 24 as against 1669 carloads in 1933.

Prosser (cont'd)

The maximum temperature for the week ending September 2 was 92, the minimum was 41, and the greatest daily range was 43°.

The orchard irrigation plots were irrigated and soil moisture samples taken. Water measurements were made on individual corrugations on the plots to determine the difference in water penetration on the plot. Soil samples in the wet pasture just south of the station were taken to determine the salt concentration. Samples of surface water in strawberry clover pastures were also taken.

Last year during the week ending August 31 915 carloads of produce were shipped from the valley as compared with 487 carloads shipped for the corresponding period this year.

Carl A. Larson.

Scotts Bluff

The average maximum temperature for the week ending August 26 was 82, with a maximum of 90; the average minimum was 54, with a minimum of 45°. The precipitation amounted to 1.23 inches, making a total of 9.15 inches for the growing season. The evaporation amounted to .193 inch daily. The wind movement was 5.6 miles per hour.

The early part of the period was hot and dry and water was run continuously. The demand has been great, and in many cases heads have been cut down to meet the needs of all. At the station all the beet, potato, and corn plots in field K have been watered and work was begun on the same crops in field E.

The second digging of early potatoes in the time-of-digging test was done during the week. An early strain of the Triumph variety and Cobblers are used in this test. In both the first and second diggings the Triumphs have outyielded the Cobblers. There were four plots of each variety tested. The yields varied in the Triumphs from 236 to 398 bushels an acre, with an average of 338 bushels; the Cobblers varied from 206 to 357 bushels an acre, with an average of 302 bushels. The low-yielding plot in each variety was at the end of the rows where there was no outlet for the run-off, and as a consequence this plot was not adequately watered.

Beginning Friday at noon it commenced raining and continued for the rest of the week. It was a general rain over the eastern part of the valley, there being very little rain west of Mitchell. It also extended south to the State line and in some places was extremely heavy. The run-off through Red Willow Creek, north of Bayard, was the heaviest ever known so far as the records show. In some sections the rain was accompanied by damaging hail. There was a little hail at the station, but no harmful effects resulted.

Over 100 cars of potatoes have been shipped out of the valley, mostly from Mitchell and Morrill, the past few weeks. The price has varied from \$1.50 to \$2.00 per cwt. The yield of the early potatoes has been very good.

The combined storage in the reservoirs is 330,000 acre-feet.

The average maximum temperature for the week ending September 2 was 81, with a maximum of 89; the average minimum was 53, with a minimum of 46. There was .8 of an inch of rainfall during the week, making a total for the growing season of 9.95 inches. The evaporation amounted

Scotts Bluff (cont'd)

to a daily average of .143 inch. The wind movement was 5.2 miles per hour.

The rains during the last ten days of August brought the rainfall up to almost the normal amount. The months of June and July and the first 20 days of August were extremely dry, the rainfall being less than one third of the normal; but the excess rainfall in the spring and the last ten days of August has about made up the deficiency for the season.

The rain has been of considerable benefit, especially to the alfalfa, which has been neglected in order to water the other crops. The rain has interfered somewhat with the bean harvest, which had just commenced. Water has been run continuously throughout the week; the alfalfa has been well irrigated.

The third digging in the time-of-digging test for potatoes showed a considerable increase in yield. The yield of Triumphs varied from 254 to 477 bushels per acre, with an average of 407 bushels; the Cobblers varied from 232 to 505 bushels an acre, with an average of 395 bushels.

James A. Holden.

Yuma

The maximum temperature for the week ending August 26 was 109, average maximum 104.7, minimum 72, average minimum 75.1, and the greatest daily range 34. There was a trace of precipitation. Humidity readings the first of the week continued high. Winds from the west and northwest have lowered the temperatures and dried out the air the past few days.

A few fields of late alfalfa seed were threshed, which largely completes the 1933 crop. In some cases a second crop will be made, which will be threshed late in September. A few seed sales were reported on a $9\frac{1}{2}$ -cent basis. Growers are waiting for crop reports from other seed-producing sections of the United States.

Cotton and grain sorghums on the project are in good shape. So far the damage from insects has been much less than that experienced in 1932. Corn earworm and smut on the station corn plots, although greatly in evidence, is no more than normal.

Discharge readings on the river at Yuma show a flow of 3030 second feet on August 24.

Station work included the hoeing of ditch banks, grubbing mesquite, roguing sandburs in alfalfa plots, hauling date leaves, general cultivating and irrigating.

E. G. Noble.

The first part of the paper is devoted to a discussion of the general principles of the theory of the structure of the atom. It is shown that the structure of the atom is determined by the laws of quantum mechanics, and that the laws of quantum mechanics are in agreement with the experimental facts. The second part of the paper is devoted to a discussion of the structure of the nucleus. It is shown that the structure of the nucleus is determined by the laws of quantum mechanics, and that the laws of quantum mechanics are in agreement with the experimental facts. The third part of the paper is devoted to a discussion of the structure of the molecule. It is shown that the structure of the molecule is determined by the laws of quantum mechanics, and that the laws of quantum mechanics are in agreement with the experimental facts.

The fourth part of the paper is devoted to a discussion of the structure of the crystal. It is shown that the structure of the crystal is determined by the laws of quantum mechanics, and that the laws of quantum mechanics are in agreement with the experimental facts. The fifth part of the paper is devoted to a discussion of the structure of the liquid. It is shown that the structure of the liquid is determined by the laws of quantum mechanics, and that the laws of quantum mechanics are in agreement with the experimental facts. The sixth part of the paper is devoted to a discussion of the structure of the gas. It is shown that the structure of the gas is determined by the laws of quantum mechanics, and that the laws of quantum mechanics are in agreement with the experimental facts. The seventh part of the paper is devoted to a discussion of the structure of the plasma. It is shown that the structure of the plasma is determined by the laws of quantum mechanics, and that the laws of quantum mechanics are in agreement with the experimental facts.

WEEKLY REPORTS

Of The Division Of
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September 9 and 16, 1933

No. 18

Huntley

The maximum temperature recorded during the week ending September 16 was 86 and the minimum was 40. The precipitation was .08 inch.

Weather conditions were favorable for field work during the entire week. Due to recent heavy rains, irrigation was discontinued and further irrigation will probably not be required during the season except possibly for pastures and stubble.

The harvest of sugar beets will begin on September 19, with beets delivered to receiving stations to be restricted until October 1 to the amount that can be processed by the sugar factory. After October 1 beets will be stored in silo piles, and there will be no limit on the amount that can be delivered. Yields as well as acreage of beets promise to be the highest on record in this section.

Lamb-feeding contracts are being entered into between local feeders and the growers of range lambs. The feeder takes in the lambs at $5\frac{1}{2}$ cents per pound and after a feeding period of 90 to 100 days turns them back at $6\frac{1}{2}$ cents. Receiving weights are those at the nearest loading station to the range where the lambs are grown less a 4 percent shrinkage. Finish weights are those at Chicago when the lambs are marketed. This latter arrangement is not considered especially favorable by some feeders, although it is the only feeding contract offered. Some feeders are buying the lambs outright. Under the feeding contract the grower collects for the lambs all but \$1.00 per head when the lambs are taken over by the feeder.

Station work during the week included the threshing of oats and wheat in the irrigated rotations, harvesting irrigated corn, and preparing and seeding winter grains in the dry land plots.

Station visitors were Geo. Morgan and M. A. Bell of the Havre station and W. H. Fairfield and W. D. Hay of the Lethbridge, Alberta station.

Dan Hansen.

Newlands

The average maximum temperature for the three-week period ending September 9 was 85.6, with a maximum of 91 on August 23 and September 3; the average minimum was 45, with a minimum of 38 on September 8. The mean temperature was 65.3. The average hourly wind movement was 1.94 miles. There was no precipitation.

The work at the station has consisted of irrigating the entire farm and plowing the S series. It is planned to sow this plowed area to winter rye and to sweet clover in the spring. A disease this summer so depleted the stand of sweet clover on this area that it was thought best to plow it and rid the plots of salt grass with the hope of getting a better stand of sweet clover next year.

Newlands (cont'd)

Senators Key Pittman and P. A. McCarran visited the project on September 7. They were present at an irrigation board meeting and later addressed the local people gathered in the theatre. They discussed principally the plans and accomplishments of the administration's farm relief measures and the problem of increasing the value of silver.

Officials of the State Extension Service have been frequent visitors throughout the project in an endeavor to acquaint the local wheat growers with the details of the wheat adjustment plan.

Several loans are being made to local farmers through federal agencies. Heretofore very little aid has been forthcoming. The new farm agencies have made it possible to obtain loans where they were not available before.

Mr. L. E. Cline, of the Nevada Extension Service, has been devoting the greater portion of his time to perfecting a milk code. Such a code will be of greater benefit to the Reno area than to the Fallon section. The latter community deals more with cream that is sold on a butterfat basis.

E. W. Knight.

Prosser

The maximum temperature for the week ending September 9 was 88, the minimum was 38, and the greatest daily range was 41°. The rainfall amounted to 0.4 inch.

On September 9 494,215 acre-feet of water was impounded in the reservoirs of the U. S. Bureau of Reclamation. Water is being used now at the rate of about 5,000 acre-feet a day.

Irrigation of the orchard plots was continued, and irrigation records were compiled.

Markets: No. 1 hay, \$11 to \$12 per ton baled, f.o.b. car; U. S. No. 1 potatoes, \$24 to \$25 per ton, f.o.b. car; oats, \$19 per ton, f.o.b. car; barley, \$14 per ton, f.o.b. car; hops, 40 cents per pound, baled, f.o.b. car; choice hogs, 160-200 pounds, \$4.25 per hundred; steers, 600-900 pounds, \$6.00 per hundred.

The maximum temperature for the week ending September 16 was 84, the minimum was 44, and the greatest daily range was 39°. The rainfall amounted to .2 of an inch.

The alfalfa on the basin plots was cut. The final set of soil samples were taken on the basins to determine the residual moisture. Irrigation records for the orchard were compiled. Hay fields under No. 1 headgate were cut and stacked.

Markets: Prime steers, 910 pounds and up, \$3.75 to \$4.25 per cwt.; U. S. No. 1 onions in sacks, f.o.b. car, \$15 per ton; butterfat, 18 cents per pound.

Mr. M. R. Lewis, Irrigation Engineer, stationed at Corvallis, Oregon, visited the station the first of the week. He is conducting an investigation upon the relation of irrigation to winter-killing of alfalfa.

Carl A. Larson.

Scotts Bluff

The average maximum temperature for the week ending September 9 was 89, with a maximum of 98; the average minimum was 61, with a minimum of 57°. The precipitation amounted to .38 inch, making a total for the growing season of 10.33 inches. The wind movement was 5.2 miles per hour. The evaporation amounted to a daily average of .176 inch.

The first part of the week was hot and dry, the precipitation coming the last of the week. The rains of the past two weeks have helped considerably in the use of water, and it has been possible to reduce the outflow from the Pathfinder Reservoir more than half, at the present time the outflow being only 3500 second-feet. The combined storage in the Pathfinder and Guernsey Reservoirs is 235,000 acre-feet.

According to officials of the Great Western Sugar Company, the sugar beet crop this year is estimated to be about 36 percent higher than it was last year, and the yield per acre will be about 14½ tons. It is said that the Nebraska mills will not begin slicing until about October 5.

Eggs have dropped to 11 cents a dozen, but butterfat has increased to 16 cents a pound. Feed prices are still advancing, so that the margin of profit is very small.

Water has been run continuously throughout the week. The beets and potatoes in field K have been watered again. The beans have been pulled and will be threshed as soon as weather conditions are suitable.

The average maximum temperature for the week ending September 16 was 73, with a maximum of 83; the average minimum was 49, with a minimum of 37°. The precipitation amounted to .89 inch, making a total for the growing season of 11.22 inches. The average hourly wind movement was 5.8 miles. The daily evaporation was .109 inch.

The weather during the week has been cold and damp and has been quite unfavorable for the bean crop, very little of which has been threshed. The damp weather has damaged the crop materially.

Leafspot in sugar beets is spreading over the valley this fall, and in all probability the sugar content will be adversely affected by it. At the station rotations 60 and 61 seem to have the heaviest infestation, but the other plots do not as yet show any sign of it.

The County Fair was held during the week, but due to the cold, rainy weather the attendance was not up to expectations. However, the exhibits, both in agricultural crops and in livestock, were very good.

Water has been run throughout the week and all the plots in field E were irrigated. With the ground well soaked now, only one more irrigation will be needed; that will be just before the water is shut off the last of the month.

James A. Holden.

Yuma

The maximum temperature for the two-week period ending September 9 was 113, average maximum 105.5, minimum 60, and the greatest daily range 47. No precipitation was recorded. The day temperatures were usually normal, but only five of the fourteen nights was the temperature down to normal.

Storms have occurred in the adjacent area to the east and north-east, but no moisture has fallen locally.

Yuma (cont'd)

This weather has made it possible to get a good start on the cotton harvest. The four gins now operating on the project have ginned to date 796 bales. Pickers are being paid 60 cents per cwt.

The Colorado River at the Yuma gaging station measured less than 1200 second-feet on September 9. This amount of water is about one fifth the capacity of the Imperial Valley canal. That district has been placed on a water proration basis by its officials. Water for the Yuma project is ample for all needs. The main canal is carrying slightly less than the normal flow of about 2,000 second-feet.

Station work included the pruning and hauling of date leaves, cleaning and repairing ditches, plowing fallow plots, general hoeing and cultivating.

Dr. R. G. Tugwell, Assistant Secretary of Agriculture, and party visited the station on September 10.

The maximum temperature for the week ending September 16 was 106, mean maximum 102.1, minimum 57, mean minimum 63, and the greatest daily range 49. The precipitation was .01 inch. Very little wind movement was recorded.

Cooler temperatures and the almost total lack of precipitation have speeded up the cotton harvesting operations. The four operating gins have turned out to date 1340 bales. Prices for ginning and for cotton seed have not been agreed upon definitely. Ginners and growers are awaiting the outcome of a hearing on this matter.

Some alfalfa hay has been sold for \$8.00 per ton baled, f.o.b. farms. A few sales of alfalfa straw have been made at \$2.00 per ton in the stack. The alfalfa seed market is stagnant. There were practically no sales during the week and only a few inquiries were reported.

Land to be planted to lettuce, peas, and carrots on the project is being prepared for planting.

The Colorado River, after dropping to a flow of less than 600 second-feet, has increased to 4,000 second-feet due to upstream rains.

Federal and State relief funds are being used in the Bard and Indian Reservation districts to improve roads and eradicate Johnson grass. About 40 men are engaged on this job.

Station work has included the hauling of date leaves, plowing and leveling plots C-32 to 35 for alfalfa, plowing under green manure crops, disking fallow plots, cleaning ditches and borders, general hoeing and irrigating. Corn plots have been given their last irrigation for the season. The interval between irrigations of cotton has been increased to two weeks.

E. G. Noble.

M I S C E L L A N E O U S

A manuscript entitled "Pima Egyptian Cotton in Irrigated Rotations at the Yuma Field Station, Bard, Calif.," by Stephen H. Hastings and Edward G. Noble, has been published as Technical Bulletin No. 369 of the Department.

A manuscript entitled "A Photronic Colorimeter and Its Application to the Determination of Fluoride," by L. V. Wilcox, has been submitted for publication in the Analytical Edition of Industrial and Engineering Chemistry.

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September 23 and 30, 1933

No. 19

Newlands

The average maximum temperature for the two-week period ending September 23 was 81.8, with a maximum of 90 on September 14; the average minimum was 40.5, with a minimum of 33 on September 22. The mean temperature was 61.2. The average hourly wind movement was 2.62 miles. There was a trace of precipitation.

The prices of some farm products have improved a little while others remain unchanged.

Several meetings have been held by the Irrigation District officials and water-users on the upper Carson and the upper Truckee Rivers. These meetings have been called at the suggestion of Nevada's congressional delegation in an endeavor to settle all disputes regarding water rights on these two rivers. All legal aspects involving the use of the waters of these two rivers will have to be settled before the allotment of \$1,500,000 will be granted by the Public Works Administration to develop upstream storage. To date little progress has been made.

The work at the station has consisted of cutting ensilage corn and filling the silo and cleaning irrigation ditches.

Yields of Ensilage Corn

Plot	Area, acre	Yield per acre, tons
D-3	0.76	8.03
D-6	.76	3.99
E-2	.76	5.91
E-7	.63	7.08
F-8	.97	5.73

The State has had some 30 tons of hay cut and stored in the barn in preparation for feeding.

Several heifers and old cows on the station have recently been sold by the State, as it was necessary to reduce the size of the herd. At present there are 25 milk cows and eleven heifers.

E. W. Knight

Frosser

For the week ending September 23 the maximum temperature was 80, the minimum was 39, and the greatest daily range was 34. The several showers of rain during the week amounted to .38 inch, making a total rainfall so far this month of .98 inch.

Prosser (cont'd)

The alfalfa on eight irrigation plots in fields E-5 and E-7 was cut. Because of the rainy weather the hay was not stacked until the last of the week. A comparison of the yields of hay from the second cutting from five irrigation plots on field E-5 for 1932 and 1933 is shown in the following table:

Plots	Total amount of water applied, acre-feet	Yields of air-dry hay, tons	
		1932	1933
1	5	1.88	1.72
2	4	2.16	1.93
3	3.5	2.15	1.92
4	3	2.02	1.90
5	2	1.44	1.40

Little difference in yield in the first cutting of hay on these plots was noticed. The lower yield for the second cutting of hay this year was most likely due to winter injury last winter.

Markets: U. S. No. 1 alfalfa hay, \$12 to \$13 per ton, baled, f.o.b. car; U. S. No. 1 potatoes in sacks, f.o.b. car, \$20 to \$22 per ton; eggs, 22 to 25 cents per dozen; onions, \$12 to \$13 per ton in sacks, f.o.b. car.

Fifty more carloads of farm produce were shipped from the valley the week ending September 21, 1933, than were shipped during the corresponding period in 1932. Shipments this year were heavier in pears, plums, prunes, and potatoes. Only about one-half as many apples were shipped this year at this time as were shipped last year.

The maximum temperature for the week ending September 30 was 72, the minimum was 29, and the greatest daily range was 34°.

The corn plots were harvested during the week, and soil moisture samples were taken on each plot. The final samples for soil moisture were taken on the first six orchard irrigation plots.

The soil survey map of the Washington section of the Walla Walla Valley has been completed. The previous report on water requirement is being modified.

U. S. No. 1 potatoes are \$18 and \$20 per ton in sacks f.o.b. car, showing a decline of \$2.00 per ton during the week.

Carl A. Larson.

Scotts Bluff

The average maximum temperature for the week ending September 23 was 81, with a maximum of 87; the average minimum was 46, with a minimum of 36. The wind movement has averaged 5.2 miles per hour. The average daily evaporation was .146 inch. No precipitation was recorded.

Digging of potatoes in the valley has begun, and the movement to market promises to be rather heavy for a time. The yields are excellent, and many new potato cellars are being built to take care of the crop that is to be held. A solid train load of potatoes was shipped from the Hemingford district this week. The price has broken since the beginning of the heavy movement and has gone below a dollar per cwt.

In the time-of-digging test at the station some of the plots of Cobblers have yielded as high as 600 bushels per acre. The Cobblers are outyielding the Triumphs in the last two diggings.

Scotts Bluff (cont'd)

The third cutting of alfalfa was stacked during the week. The quality was very good and the yield about normal. A good stand was obtained on all the current seeding, both in the plots and in the larger fields.

Water in both the Interstate and the Farmers canals has been shut down to about half a head. Under the Pathfinder district canal there is little water being used, much of it going into the supplementary reservoirs in Nebraska. Water was run on the station farm only to take care of the irrigation tests on the Walker place.

The sugar content of the beets gained one percent during the past week, according to the figures given out by the local chemists. The sugar content will probably be no higher than last year.

Eggs are now selling for 17 cents per dozen. Butterfat remains at 17 cents per pound. Hog prices are back again to the \$5 level, but there has been no gain in beef cattle values. Grains remain about steady.

The average maximum temperature for the week ending September 30 was 77, with a maximum of 90; the average minimum was 42, with a minimum of 35. The average wind movement was 4.9 miles per hour. The evaporation amounted to .135 inch daily. The precipitation was .27 inch, making a total for the growing season of 11.57 inches. The normal precipitation by months for a 24-year period as compared with that for the current year and the percentage of normal for the year:

	Normal, inches	1933, inches	Percent of normal
April	1.84	3.22	175
May	2.68	3.02	164
June	2.19	.30	14
July	1.60	1.33	88
August	1.75	2.16	123
September	1.66	1.54	93
Average for season	11.72	11.57	99

While the rainfall for the season has been practically normal, the months of June and July, which are critical months in the life of the crop, showed only 43 percent of the normal rainfall. There was no interruption in the water service and probably no crop suffered for water unless it was the second crop of alfalfa.

At the station the work has been mostly routine. Some of the plots were getting rather badly infested with sweet clover, which was cut out. Some of the sweet clover fields were fenced so they can be utilized to pasture the dairy stock.

The digging of potatoes over the valley has commenced and is being pushed as rapidly as possible. Fear of an early freeze, as was the case last year, caused harvesting of the crop to start a little earlier than usual. Also many of the growers are trying to get their potatoes taken care of before beet harvest commences. The movement of potatoes has not been very heavy, as most of the growers are either pitting or storing them in cellars. A large number of potato caves have been built this fall with capacities as high as 60 cars.

Water was shut out of the Interstate and Farmers canals at the end of the week. At the end of the season the storage in the Pathfinder

Scotts Bluff (cont'd)

reservoir was 122,000 acre-feet and in the Guernsey reservoir 32,000 acre-feet. The inflow in the Pathfinder at this time is 380 second-feet.

James A. Holden.

Umatilla

For the week ending September 30 the maximum temperature was 68 and the minimum 33. There was no precipitation. As was the case last fall, the temperature on the lower part of the project dropped below freezing while it was just above freezing at the station. The night it was 33 at the station the Irrigation District reported 27°, with heavy killing of garden truck.

The third crop of hay was cut during the week. The turkey lots were prepared for the finishing tests to be inaugurated this fall. These tests are preliminary for the purpose of developing subsequent fattening experiments. They will compare high and low protein mashes, both fed with grain; corn vs. wheat, both with and without milk; a scratch of home-grown grains for three weeks, with wet mash the last three weeks prior to killing, and the same high protein mash the turkeys have been raised on will be fed along with the scratch. The results will be determined by the number of mature, fat turkeys that are ready for the November and December markets. Live and dressed weights will be taken, and the turkeys will be graded according to Government standards.

A new dairy experiment to determine the economic limits of feeding concentrates will be started on October 1. One lot of nine cows will be fed hay alone and another lot will be fed hay plus concentrates at the rate of one pound of grain for each pound of butterfat produced in five days.

Official visitors were Director W. A. Schoenfeld and Mr. E. L. Potter of the Oregon Agricultural Experiment Station. Mr. H. E. Cosby, Extension Poultryman, also visited the station in connection with the turkey experiments.

H. K. Dean.

Yuma

The maximum temperature for the two-week period ending September 30 was 106, mean maximum 100.6, minimum 54, mean minimum 68.4, and the greatest daily range 42. The precipitation was .14 inch.

The day temperatures have been about normal with little fluctuation. The night temperatures, however, have varied from 54 to 77 during the two weeks. Humidity readings continue to be high. Instead of the expected cooler weather following the rain on the 30th, it has been hot and sticky.

Weather conditions for cotton picking and ginning have been favorable. The four gins have turned out to date 1840 bales. On the same date last year 3100 bales had been ginned.

There is a strike of cotton pickers in the Yuma Valley division of the project. The strikers are demanding \$1.00 per cwt. for picking short cotton. The first picking of the crop being completed in most sections, the growers and ginners have threatened to close the gins for

Yuma (cont'd)

a period of 60 days if the strike continues. The present prevailing rate is 60 cents per cwt.

Upstream rains increased the flow of the Colorado River so that water prorations were in effect in the Imperial Valley only for a very short period. The present flow is recorded as about 3500 second-feet. The water is carrying an unusually heavy silt burden. Officials of the Imperial Irrigation District report a silt content of 27 percent.

Station work has included the harvesting of the sixth cutting of hay from all of the alfalfa plots, cleaning ditches, repairing ginning equipment, grinding feed, hauling date leaves, general irrigating and hoeing.

E. G. Noble.

M I S C E L L A N E O U S

Mr. S. H. Hastings left Washington on September 30 for a trip through the West and Southwest. He expects to be gone about a month.

Mr. C. S. Scofield is planning to leave Washington on October 16 for Riverside, California, where he will be located for the next several months.

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No. 20

Huntley

The maximum temperature during the week ending October 7 was 84 and the minimum 20. There was no precipitation.

Weather conditions continued very favorable for field work and good progress was made in the harvest of late crops. Threshing of beans and stacking of third-crop alfalfa were completed.

Restrictions on deliveries of sugar beets were raised on October 1, and all receiving stations are in full operation. Yields are running somewhat lower than the early estimates, due probably to the dry, warm weather during the past month, but will still average in excess of 14 tons. The high average yield of over 14 tons in the past two seasons as compared to 10 tons in previous years is probably due to a combination of favorable seasonal conditions, the general use of superphosphate fertilizer, and generally better farming practices. In 1932 about 65 percent of the beet acreage was treated with phosphate, while in 1933 this fertilizer was used on more than 90 percent of the beet land. With the high yield the beets are also carrying a high sugar content, the average during the first week of the harvest being over 17 percent.

The local sugar factory will process about 500,000 tons of beets and will have a sugar output of about 85,000 tons. The initial payment for beets will probably be about \$5.00 per ton with additional payments as the sugar is marketed. An additional payment of probably 50 cents per ton will be made during this month for the 1932 crop of beets, making the total for that crop \$5.57 per ton.

Winter feeding of lambs on project farms will probably be in excess of last year. A large number of feeders already have lambs in the feed lots. Hay is selling at \$5.00 per ton and grains at 65 to 75 cents per cwt.

Station work included the harvest of sugar beets and manuring and plowing of plots in the irrigated rotations. A shipment of 300 range lambs from the flock at the Bozeman station was received on October 6. These lambs will be placed on feed in ten lots of 30 lambs each. The feeding experiment will start on October 14.

Potatoes in the irrigated rotation experiments, 1933

	Bushels per acre
Maximum yield	358.0
Minimum "	58.7
Average "	201.8

Oats in the irrigated rotations in 1933

	Bushels per acre
Maximum yield	98.9
Minimum yield	31.0
Average yield	69.8

Huntley (cont'd)

Wheat in the irrigated rotations in 1933

	Bushels per acre
Maximum yield	44.1
Minimum "	10.9
Average "	26.2

Alfalfa in the irrigated rotations in 1933

	Total of three cuttings, tons per acre
Maximum yield	7.60
Minimum "	1.74
Average "	4.78

The average yield of beans in the irrigated rotations this year was 48.8 bushels per acre. The average yield of flax in the irrigated rotations was 12.1 bushels per acre.

Dan Hansen.

Newlands

The average maximum temperature for the two-week period ending October 7 was 81, with a maximum of 86 on September 28 and October 3; the average minimum was 40.2, with a minimum of 34 on October 5. The mean temperature was 60.6. The average hourly wind movement was 1.78 miles. There was a trace of precipitation.

At the station the third crop of hay has been cut and put in shock. The cool fall weather delays curing.

On October 6 and 7 Mr. S. H. Hastings and Dr. Frank M. Eaton visited the station.

Project conditions: Third crop haying operations are underway on most farms. Some feeder cattle have been brought in, and most of them are being fed at the rate of 10 cents per head a day. This will amount to about \$5.50 per ton of hay fed.

E. W. Knight.

Prosser

The maximum temperature for the week ending October 7 was 83, the minimum was 33, and the greatest daily range was 40°. The weather was generally clear and mild.

Records of irrigation on various plots were compiled.

Markets: U. S. No. 1 potatoes, \$18 to \$19 per ton; U. S. No. 1 onions, \$10 to \$11 per ton; wheat, 52 cents per bushel; hops, 35 to 40 cents per pound, baled; hogs, \$5.00 per hundred.

The maximum temperature for the week ending October 14 was 80, the minimum was 35, and the greatest daily range was 39°.

Irrigation water has not been shut off, and all alfalfa fields are receiving a fall irrigation. Harvesting apples in the station apple orchard was almost completed at the end of the week.

The warehouse of the Yakima Valley Fruit Growers' Association at Prosser was destroyed by fire on October 14. The loss to the association is estimated at about \$42,000. Many members of the association live in the Prosser section. The packing season was at its peak. The

Prosser (cont'd)

apples from the station were sold through this organization.

Markets: U.S. No. 1 baled hay, \$12 to \$13 per ton; U.S. No. 1 potatoes, \$15 to \$17 per ton; U.S. No. 1 onions, \$9 to \$10 per ton; oats and barley, \$20 and \$16 per ton, respectively; hops, 35 to 40 cents per pound; wheat, 52 cents per bushel; eggs, 24 to 27 cents per dozen for average large whites; butterfat, 18 cents per pound.

During the last four weeks more carload lots of produce have been shipped than were shipped for the corresponding period last year. This is due mainly to the heavier shipments of potatoes and pears.

Carl A. Larson.

Scotts Bluff

During the week ending October 7 the average maximum temperature was 77, with a maximum of 81; the average minimum was 36, with a minimum of 29°. The wind movement averaged 4.4 miles per hour.

The entire week was spent in harvesting potatoes. The yields were very good, varying from 84 bushels an acre on the continuous plots to 424 bushels on rotation 60--a 6-year rotation.

Weather conditions have been very good for all harvesting. All of the sugar factories in the valley began slicing before the end of the week. Piling of beets was started at the last of the week, and growers are preparing to rush the crop out while good weather prevails.

Scottsbluff is developing into quite an important livestock marketing point. Two commission companies are holding sales each week. Stock is brought in from Colorado, Wyoming, and South Dakota for these sales. At the sale this week one of the companies handled 1500 head of cattle, besides other stock. During the past year the combined sales of the two companies have amounted to about a million dollars.

There has been little change in the prices of farm products. On the local market hogs have sold a little above \$5. Eggs have advanced some and are selling at from 20 to 25 cents per dozen.

The average maximum temperature for the week ending October 14 was 76, with a maximum of 81; the average minimum was 32, with a minimum of 29. The wind movement was 4.7 miles per hour.

The week has been spent largely in completing the harvest of potatoes. Because of a lack of storage facilities the greater part of the crop from the Walker tract has been sold at auction, the price ranging from 65 cents to \$1.00 per hundred pounds. The market broke badly during the week, and potatoes are now selling at 50 to 60 cents per hundred pounds.

The beet harvest is going on rapidly, and some of the smaller acreages have been delivered. The sugar content is increasing at the rate of one fourth of 1 per cent daily, according to local chemists; and if this rate continues, the later-harvested beets will probably show a considerably higher sugar content. Harvesting of beets at the station will commence the first of next week.

The rest of the potatoes in the time-of-digging tests were harvested. A number of the plots yielded at the rate of over 600 bushels an acre, the highest yield being 705 bushels an acre, of which 678.3 bushels were of U. S. No. 1 size.

Mr. S. H. Hastings visited the station during the week.

James A. Holden.

Scotts Bluff (cont'd)

Potatoes in the rotation experiments - 1933

Field K

Bushels per acre

Maximum yield	423.9
Minimum "	83.7
Average "	307.8

Field E

Maximum yield	423.3
Minimum "	149.4
Average "	293.8

J.A.H.

M I S C E L L A N E O U S

A manuscript entitled "South Coastal Basin Investigation: Quality of Irrigation Waters," by Mr. Carl S. Scofield, has been published as Bulletin No. 40 of the Division of Water Resources of the State of California.

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No. 21

Belle Fourche

During the month of October the maximum temperature was 83 and the minimum 26. The precipitation was .38 inch.

The potatoes were harvested during the first week of October, and the yields were as follows:

Rotation	Yields	Bushels per acre	Percent marketable
21	Maximum	213.0	89.2
27	Minimum	93.3	84.3
	Average	148.4	84.9

On October 10 700 lambs were divided into seven lots and started on feed, using the following rations:

- Lot 1. Shelled corn and alfalfa hay.
- Lot 2. Whole barley, Mono calcium phosphate, pressed pulp, and alfalfa hay.
- Lot 3. Whole barley, pressed pulp, and alfalfa hay.
- Lot 4. Whole oats, pressed pulp, and alfalfa hay.
- Lot 5. Whole wheat, pressed pulp, and alfalfa hay.
- Lot 6. Whole wheat 50 parts, whole oats 50 parts, pressed pulp, beet tops, and alfalfa hay.
- Lot 7. Shelled corn, pressed pulp, and alfalfa hay.

These lambs are from Rambouillet range ewes and purebred Hampshire rams. Their average weight was 62 pounds at the beginning of the experiment.

Beet harvest was started on October 16 and completed October 28. Ten samples of ten beets each were taken from each plot in the irrigated rotations previous to harvesting. The average percent of sugar from all the rotations was 18.3, with a purity of 87.6 percent. The maximum yield--15.36 tons per acre--was obtained in rotation 23, and the minimum--0.84 ton per acre--from rotation 66. The average yield was 8.83 tons per acre.

The final payment for the 1932 sugar beets was made by the Sugar Company on October 15 and amounted to \$5.40 per ton.

The beet harvest on the project is about 80 percent completed. At the opening of the factory October 1 the sugar content was rather low, 15 percent. The average for the month is well over 16 percent and since October 20 is 17 percent. The yield to date is about average.

Irvine Dietrich, of the Mandan Field Station, arrived October 12 to gather 3 tons of Ash seed and 1 ton of Russian Olive seed in this vicinity for use in the soil erosion and flood control program.

Beyer Aune.

Huntley

The maximum temperature during the week ending October 21 was 74 and the minimum 22. The precipitation was .62 inch. This rainfall delayed field work, although the beet harvest is well advanced and many growers have completed delivery of the crop. Station work included harvest of beets and plowing.

The final payment of 30 cents per ton on the 1932 beet crop will be made this month. This brings the total for that crop to \$5.36 per ton.

The harvest of beets on the station was completed on October 15. Yields per acre varied from 2.07 tons in rotation 42 to 21.24 tons in rotation 37, with an average of 11.62 tons in all of the rotations. The yield in the maximum crop rotation was at the rate of 24.14 tons per acre. The most noticeable feature of beet yields in the rotations is the continued decline in yields in the four and six-year rotations without manure. Rotation 60 (3 years alfalfa, potatoes, oats, and beets) gave a yield of 9.60 tons as compared to 19.21 tons in rotation 61, while the yields in rotation 40 (2 years alfalfa, potatoes, and beets) and rotation 42 (2 years alfalfa, oats, and beets) were at the rate of 4.47 tons and 2.07 tons, respectively.

Work was started on the construction of additions to the office and to one of the station cottages. Orders were placed for material for a closed drain and also for some fencing material. Work on these projects, which are to be financed with funds allotted by the Public Works Administration, will probably begin about November 1.

The lamb feeding project in cooperation with the Montana Agricultural Experiment Station was started on October 14. In this experiment ten lots of 30 lambs each were placed on various feeds, as follows:

- Lot 1.- Barley, dried beet pulp, alfalfa.
- Lot 2.- Barley, dried beet pulp, Mono calcium phosphate, alfalfa.
- Lot 3.- Barley, wet pulp, Mono calcium phosphate, alfalfa.
- Lot 4.- Barley, wet pulp, cottonseed cake, alfalfa.
- Lot 5.- Barley, wet pulp, bone meal, alfalfa.
- Lot 6.- Barley, wet pulp, alfalfa.
- Lot 7.- Soft wheat, wet pulp, alfalfa.
- Lot 8.- Corn, wet pulp, alfalfa.
- Lot 9.- Oats, wet pulp, alfalfa.
- Lot 10. Oats, alfalfa.

Dan Hansen.

Newlands

The average maximum temperature for the two-week period ending October 21 was 76.7, with a maximum of 82 on October 11 and 12; the average minimum was 36.6, with a minimum of 28° on October 16. The mean temperature was 56.7. The average wind movement was 1.62 miles per hour. No precipitation was recorded.

The first killing frost this fall occurred on October 16, making a frost-free period for this year of 150 days. The average length of the frost-free period during the last 27 years has been 125 days. The only other year exceeding the past summer in length of the frost-free period was 1932 with 164 frost-free days.

Harvesting the third crop of hay at the station has been com-

Newlands (cont'd)

The average yield was 1.07 tons per acre. Completed. Part of the newly seeded alfalfa areas produced some hay, which was cut and stacked for the young heifers.

E. W. Knight.

Prosser

The maximum temperature for the week ending October 21 was 74 and the minimum was 24°. Rainfall amounted to .07 inch. The wind movement was very high.

Irrigation water was cut off from the station the latter part of the week. Corn from the irrigation plots was shelled.

A comparison of the yields of alfalfa hay from the third cutting of five plots on field E-5 for 1932 and 1933 follows:

Plot	Total acre-feet of water applied during the season	Air-dry hay (tons per acre)	
		1932	1933
1	5	1.80	1.03
2	4	1.87	1.11
3	3.5	1.84	1.21
4	3	1.65	1.13
5	2	1.02	.77

The time of irrigation for the two seasons was about the same. One difference was the period of hot weather in August this year, which was much warmer than in 1932. The big reduction in yield is thought to be due to winter injury last winter.

Markets: Potatoes, \$15 to \$16 per ton; oats and barley, \$17 and \$14 per ton, respectively; hops, 35 cents per pound; butterfat, 19 cents per pound; hogs, 165 to 200 pounds, \$4.75 per cwt.

The maximum temperature for the week ending October 28 was 75, the minimum was 33, and the greatest daily range was 31°. The rainfall amounted to .32 inch.

Soil moisture samples were taken on the potato irrigation plots, and preparation made for harvesting the crop.

Markets: Top price for prime steers, 910 pounds and up, \$4.00 per cwt.; hops, 32 to 35 cents per pound.

Carl A. Larson.

Scotts Bluff

The average maximum temperature for the week ending October 21 was 62, with a maximum of 77; the average minimum was 31, with a minimum of 19°. No precipitation was recorded.

Weather conditions have been ideal for harvest, and beets are being delivered at a rapid rate. At the station all labor has been employed in harvesting beets. The yields are not very good, but the sugar content is better than was expected. Two tests of the sugar content of beets delivered during the week were as follows: from the short rotations, 17.2 percent; from the long rotations (with alfalfa), 14.7 percent.

Many feeder lambs are coming in this week, most of them direct from the range. It is estimated that the lamb-feeding operations in this section will be less than last year. The price is around \$5.75

Scotts Bluff (cont'd)

per cwt. at shipping point. The superintendent is going to Denver the first of the week to get lambs for the station experimental work.

Dr. Hildreth, of the Cheyenne Field Station, visited this station during the week to confer with the superintendent on landscaping the grounds.

There has been no change in the prices of farm products except that eggs have declined a little. Potatoes are so low that no one is selling and there is no market established. The low sugar content of beets that is reported from some sections will put the price below the cost of production in those localities.

James A. Holden.

M I S C E L L A N E O U S

Mr. S. H. Hastings, Principal Agronomist, returned to Washington on November 2 from a Southwestern field trip.

W E E K L Y R E P O R T S

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November 4 and 11, 1933

No. 22

Huntley

During the week ending November 4 the maximum temperature was 66 and the minimum 12. The precipitation was .80 inch. The first snow-fall of the season occurred on November 3. This storm was general over the State and was followed by severe freezing.

Harvest of sugar beets in this area was nearly completed, about 1,000 acres remaining unharvested in the entire district. Yields are slightly over 13.5 tons per acre or about 1 ton less than the pre-harvest estimate. This drop in yield is attributed to drought and warm weather immediately before and during the harvest.

At the station most of the field work, including fall plowing, was completed. Work was started on the construction of a closed drain to relieve seepage on parts of the station. Replacing fences around some of the fields was also begun. These projects are being financed with funds allotted by the Public Works Administration. On these projects, together with building construction that is under way, about 20 men are employed.

In the wheat variety test the highest yield--52.9 bushels per acre--was made by Champlain, while Reward made the lowest yield--19.1 bushels per acre.

Dan Hansen.

Newlands

For the two-week period ending November 4 the average maximum temperature was 68.2, with a maximum of 78 on October 28; the average minimum was 31.5, with a minimum of 22 on November 1. The mean temperature was 49.9. The average hourly wind movement was 2.28 miles. There was .17 of an inch of precipitation, breaking a long dry period. There were few showers during the summer months this year, it being one of the driest summers on record.

Eggs are 28 cents a dozen; butterfat, 22 cents a pound; beef, 5½ cents; hogs, 5 cents; and lambs 6 cents a pound. Hay is being sold at \$4.50 per ton in the stack. Those farmers who are disposing of their hay by feeding it to beef cattle get a little more for it as they furnish the labor necessary to feed the cattle.

The outlook for the turkey market is rather encouraging. In San Francisco turkeys are now bringing 24 to 26 cents per pound. The number of turkeys in cold storage appears to be below normal. There is also said to be a decrease in the number grown, some estimates placing this decrease as high as 15 percent. However, Nevada growers are reporting that their turkeys are in fine condition and predict that a larger number than usual will be ready for the Thanksgiving market.

Newlands (cont'd)

The work at the station has consisted of preparing and seeding the S series to fall rye, burning weeds, and hauling manure.

E. W. Knight.

Prosser

During the week ending November 4 the maximum temperature was 64 and the minimum was 23°. The precipitation amounted to .32 inch.

Shelled corn from the irrigation plots was screened, and moisture determinations were made. Record rows were dug on the potato plots.

Market prices: Wheat, 59 cents per bushel; butterfat, 20 cents per pound; prime steers, 910 pounds and up, \$4.00 per cwt.; hogs, choice 165 to 200 pounds, \$4.00 per cwt.

Carload shipments of produce from the valley during the week ending November 2 have exceeded shipments during the corresponding period last year. This was due to larger shipments of pears and potatoes. Apple shipments continue to be much lower than they were last year.

For the week ending November 11 the maximum temperature was 51, the minimum was 25, and the greatest daily range was 25°.

Market prices: No. 1 hay, \$12 to \$13 per ton baled*; U. S. No. 1 potatoes, \$17 to \$18 per ton; U. S. No. 1 onions, \$9 to \$10 per ton in sacks*; wheat, 60 cents per bushel; oats and barley, \$19.50 and \$16 per ton, respectively, in sacks*; hops, 32 to 35 cents per pound baled*; average large white eggs, 24 to 27 cents per dozen; butterfat, 20 cents per pound; prime steers, choice hogs, and choice spring lambs, 4 cents per pound.

*f.o.b. car.

Carl A. Larson.

Scotts Bluff

The average maximum temperature for the week ending November 4 was 61, with a maximum of 86; the average minimum was 24, with a minimum of 1 above zero. The wind movement has averaged 6.7 miles per hour. Weather conditions were good until Friday night when the temperature dropped suddenly and on Saturday morning it commenced snowing. Around Mitchell and Scottsbluff about 3 inches of snow fell, containing .23 inch of measured precipitation.

According to the estimates of the sugar company officials, the beet crop is about 98 percent harvested. No estimate has been given of the tonnage or the percent of sugar. The sugar beets on the station will probably average higher in sugar content than they did last year.

A car of lambs was received at the station during the week and will be placed on feed shortly.

The hogs used in the pasture tests at the station were sold on the local market and brought \$4.25 per cwt., which was a little above the Omaha market, considering freight charges. Cattle prices are discouraging. One of the cows in the dairy herd at the station was culled out. She was in fair condition and weighed 1400 pounds, but she brought less than \$17.

Scotts Bluff (cont'd)

The average maximum temperature for the week ending November 11 was 48, with a maximum of 65; the average minimum was 21, with a minimum of 5°. The wind movement averaged 6.2 miles per hour.

Weather conditions have remained favorable for the continuation of harvest. The storm at the end of the last period passed without delaying work this week to any extent; and the beet harvest is over with the exception of a few isolated fields.

An initial payment on November 15 of \$4.00 per ton for sugar beets has been announced by the Great Western Sugar Company. The total payment will amount to over \$14,000,000 in the Great Western territory, and will be about 25 percent greater than the payment last year. Of this amount Nebraska will get about \$3,500,000, practically all of it being distributed in the North Platte Valley. The average yield has not as yet been determined, but it is rather certain to be below that of last year. The yields at the station varied from 4.07 tons to 22.72 tons per acre, with an average for all plots of 13.32 tons an acre.

There will be about 15 percent fewer lambs on feed in the valley this year than last year, according to figures just issued by S. K. Warwick, secretary of the lamb feeders' association. Up to November 4 849 cars of feeder lambs had been shipped into the valley as compared with 1,131 last year at the same time. About 260,000 lambs are in the feed yards of the valley now.

Dean W. W. Burr, Prof. H. P. Davis, and Mr. E. C. Scheidenhelm, of the College of Agriculture at Lincoln, visited the station during the week.

James A. Holden.

W E E K L Y R E P O R T S

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November 18 and 25, 1933

No. 23

Newlands

The average maximum temperature for the two-week period ending November 18 was 59.4, with a maximum of 65 on November 16; the average minimum was 19.3, with a minimum of 14° on November 6. The mean temperature was 39.3°. The average wind movement was 1.05 miles per hour. No precipitation was recorded.

Manure and gypsum were applied to various plots in the E, D, and F series. In the laboratory well waters of the station have been analyzed as well as a few samples of both waters and soils from throughout the project. The water table underlying the station area has dropped an average of from 1 to 1½ feet since the irrigation water was shut out of the canals in October.

Turkey picking, grading, packing, and shipping is now fully underway on the project. Four carloads of turkeys will be shipped to the Los Angeles markets for the Thanksgiving holiday through the local pool of the Northwestern Turkey Growers' Association. It is estimated that 60 percent of the farmers raising turkeys on the project this year are shipping through the pool. Prices are quoted at 18 and 20 cents. Toms are averaging 16 pounds each and hens 11 pounds, 80 percent being classified as A-1 turkeys. Strict grading is in force as usual.

C. L. Moon.

Prosser

The maximum temperature for the week ending November 18 was 49, the minimum was 34, and the greatest daily range was 15°. Rainfall amounted to .08 inch. The weather was foggy throughout the week.

Market prices: Onions, \$10 to \$11 per ton; hops, 28 to 30 cents per pound baled; No. 1 hay, \$11 to \$12 per ton baled. Prices of live-stock remained stable during the week. This year apple growers are receiving 40 cents more per box for apples than they received last year at this time.

The maximum temperature for the week ending November 25 was 72, the minimum was 29, and the greatest daily range was 30°. The first part of the week was very foggy and on two days there was a trace of rain. The maximum temperature of 72° was the highest ever recorded at the station this late in the year.

During the week potatoes were graded from the potato irrigation plots and two sacks from each plot were placed in common storage.

The Washington Irrigation Institute held its sessions in Yakima on November 24 and 25. Many problems concerning the management of irrigation districts, water rights, and future irrigation problems were dis-

Prosser (cont'd)

cussed. Dr. Elwood Mead, Commissioner of Reclamation, attended some of the sessions.

Carl A. Larson.

Scotts Bluff

The average maximum temperature for the week ending November 18 was 62, with a maximum of 69; the average minimum was 26, with a minimum of 19°. The wind movement has averaged 8.5 miles per hour. No moisture was recorded.

The weather conditions have been very favorable. All the beets have been harvested and the beet dumps have closed. The average yield of beets at the station this year--13.32 tons an acre--was just 1.50 tons below that of last year, but the sugar content this year was much higher. Last year it was 14.4 percent for the total acreage, while this year it was 16 percent for beets grown in the rotations and 17.6 percent for those grown on the Walker tract, the initial payment being \$4 and \$4.50 a ton, respectively.

At the station during the week corn was gathered from the Walker tract and the feed yards were cleaned out. In the lamb-feeding tests this year grain self-feeders are to be given a trial and these are being made up. The rations to be used have not been definitely determined as yet.

The yield of corn from the Walker tract is very good, some of it making as high as 60 bushels an acre.

The average maximum temperature for the week ending November 25 was 60, with a maximum of 69; the average minimum was 26, with a minimum of 15. The average hourly wind movement was 10.6 miles. Only a trace of moisture was recorded.

Weather conditions have remained very favorable during the week. The wind movement has been quite heavy, with some damage reported to winter wheat in the dry land sections. While there is a fair amount of sub-soil moisture, the upper soil is very dry and the heavy winds have been hard on the grain. In the irrigated sections on the lighter soils there has been some drifting of sand.

At the station the gathering of corn has been continued. The self-feeders for the lamb-feeding experiments have been completed.

In the time-of-digging tests at the station this year the yields of Cobbler potatoes varied from 200 bushels an acre in the first digging to 629 bushels in the sixth, with an average for all plots and diggings of 411 bushels. The yields of Triumphs varied from 210 bushels in the first digging to 665 bushels an acre in the seventh digging, with an average for all plots and diggings of 421 bushels.

James A. Holden.

WEEKLY REPORTS

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December 2 and 9, 1933

No. 24

Prosser

The maximum temperature for the week ending December 2 was 56, the minimum was 21, and the greatest daily range was 27°. The rainfall amounted to 0.03 of an inch.

There was very little change in the prices of farm produce during the week. The price of choice hogs advanced from \$4.00 to \$4.25 per cwt. U. S. No. 1 onions advanced \$3.00 per ton and are now \$14 in sacks f.o.b. car.

The maximum temperature for the week ending December 9 was 61, the minimum was 24, and the greatest daily range was 25°. Rainfall amounted to .41 inch.

Irrigation and crop data were compiled the first part of the week and the latter part of the week was spent in the laboratory.

Market prices: Live and dressed turkeys, 10 and 14 cents, respectively, to the grower; choice hogs, 160 to 210 pounds, \$3.75 per cwt.; prime steers and spring lambs, \$4.00 per cwt. to the producer; No. 1 hay, \$11 to \$12 per ton; U. S. No. 1 onions, \$16 to \$22 per ton, showing an increase of \$2.00 per ton; U. S. No. 1 potatoes, \$16 to \$17 per ton; hops, 30 to 35 cents per pound baled; eggs, 21 to 24 cents per dozen; butterfat, 19 cents per pound.

Carl A. Larson.

Scotts Bluff

The average maximum temperature for the week ending December 2 was 45, with a maximum of 63; the average minimum was 24, with a minimum of 15°. The average wind velocity was 6.3 miles per hour. The precipitation, in the form of snow and rain, was .44 inch and was general over all the valley as well as over all the State. The total precipitation for the year--12.93 inches--is considerably below normal.

The work at the station has been of a routine nature: gathering corn, cleaning out corrals, and preparing the feeding lots for the lambs.

There is considerable agitation among some of the beet growers in the valley for the establishment of a sugar factory, mainly for the purpose of a check on the production costs of sugar. Hon. Terry M. Carpenter, the Congressman from this district, is working on the matter; and it is reported that Senator Norris will attempt to obtain funds, through Federal agencies, for the erection of the factory. The growers have intimated that they will be willing to contribute a portion of their beets toward paying for stock in the enterprise, making it self-liquidating. The Beet Growers' Association, as an organization, is not

Scotts Bluff (cont'd)

pushing the matter.

There has been little change in the price of farm products. Due to the decreased number of lambs and cattle on feed, there is no demand for alfalfa hay, and the price varies from \$4 to \$6 a ton.

The average maximum temperature for the week ending December 9 was -50, with a maximum of 58; the average minimum was 24, with a minimum of 16°. The wind movement averaged 10.2 miles per hour. There was only a trace of moisture.

Gathering corn from the Walker tract was the principal activity at the station during the week. Some work has been done in building new pasture fences and in tearing out some old fences on the Walker farm.

Mr. Paul Hoff, of the Nebraska Agricultural Engineering Department, was here during the week and made a detailed plot of the Walker tract, preparatory to locating the livestock feeding yards on that place.

There has been little change in farm prices.

James A. Eldon.

WEEKLY REPORTS

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December 16, 23, and 30, 1933

No. 25

Huntley

During the week ending December 16 the maximum temperature was 46 and the minimum -8. The precipitation was .37 inch. The first snow and severe freezing of the season occurred during the week. A snowfall of about 4 inches on December 10 was followed by several days of subzero temperatures. Previous to this time weather conditions were favorable for outside work, more than the usual amount of fall plowing and other field work being done.

Construction work on projects under the Public Works Administration, including fencing, repairs, and addition to the office building, and the first unit of a closed drain, was completed.

Final weights of lambs in the feeding trials were taken on December 15. The lambs have made exceptionally good gains, and a feeding period of only 63 days was required. The average initial weight of the lambs was 74 pounds, and the average final weight was about 100 pounds. Data from the experiment are being compiled, and the results will be presented at a feeders' day meeting at the station on December 22.

Prof. W. F. Dickson, of the Montana Agricultural Experiment Station, was at this station during the last three days of the week to assist in closing the feeding experiment.

Dan Hansen.

Prosser

The maximum temperature for the week ending December 16 was 61, the minimum was 23, and the greatest daily range was 28°. Three showers of rain fell during the week amounting to .14 inch, making a total rainfall for the first half of December of .59 inch.

During the week the laboratory was rearranged to provide more storage space for equipment and for more convenience in making various determinations.

Market prices: Hogs, 3½ cents per pound; butterfat, 15 cents; eggs, 19 to 22 cents per dozen.

Four hundred and forty-seven carloads of apples were shipped this week, almost doubling the shipments for the corresponding week last year.

Carl A. Larson.

Scotts Bluff

The average maximum temperature for the week ending December 16 was 46, with a maximum of 54; the average minimum was 18, with a minimum of 9. The average wind movement was 9.7 miles per hour. No precipitation was recorded at the station.

Scotts Bluff (cont'd)

Weather conditions have been good throughout the week. There is very little frost in the ground. The wind movement has been rather high, but there have been no destructive winds.

The labor force at the station has been cut down to the winter basis, and only the routine work of caring for the stock is being carried on. Moving the hog houses to the Walker tract has been commenced and will be completed in a day or two. This is being done under the Civil Works Administration.

About ten cars of turkeys from western Nebraska and eastern Wyoming were shipped to the Christmas markets through the poultry association. They were consigned and the price received has not yet been determined. Through the work of the county agents and poultry specialists the growers have been improving their methods, and the quality of turkeys produced this year has been the highest in the history of the association.

Cream prices declined this week from 16 cents to 12 cents per pound of butterfat. Eggs also dropped from 24 cents to 20 cents per dozen.

The average maximum temperature for the week ending December 23 was 57, with a maximum of 66; the average minimum was 30, with a minimum of 13°. The wind movement has averaged 15.1 miles per hour. No precipitation was recorded.

The temperatures have been above normal. The wind movement has been particularly heavy, though no great amount of damage has been done to crops or lands.

A few cars of early lambs have been shipped out of the valley during the month at a price of over \$7 per cwt. With any strengthening of this price, the movement to market will commence, as a good many lambs went into the feedlots early.

Butterfat has dropped to 10 cents a pound, the lowest it has ever been in the valley. Butter has been sold at retail in the stores for less than 15 cents a pound, which is a low for this commodity in recent years. Eggs have declined to 15 cents a dozen.

The average maximum temperature for the week ending December 30 was 41, with a maximum of 58; the average minimum was 13, with a minimum of zero. This is the first time the temperature has dropped to zero this winter. The wind movement amounted to 6.6 miles per hour. No precipitation was recorded.

The work of taking out the trees along the driveway into the station has been about completed. Two men are also working on the C.W.A. projects.

The shelling of the corn crop from the Walker tract was completed during the week. It amounted to 871 bushels of shelled corn, making an average yield of about 45 bushels per acre. It was of a very good quality.

Weather conditions have been favorable. Very little frost is in the ground--not enough to interfere with the many projects that are being carried out through the emergency works, and no time has been lost on account of weather. Employment conditions are much improved and conditions generally are better than last winter.

James A. Holden

M I S C E L L A N E O U S

Dr. W. A. Taylor, who has retired as Chief of the Bureau of Plant Industry, was succeeded the first of the year by Mr. Knowles A. Ryerson, formerly in charge of the Division of Foreign Plant Introduction in this Bureau.

Dr. Karl F. Kellerman has resigned as Associate Chief of the Bureau of Plant Industry to take charge of the important new Division of Plant Disease Eradication and Control in the same Bureau. Mr. Frederick D. Richey, who has been in charge of Corn Investigations in the Division of Cereal Crops and Diseases, was appointed Associate Chief to succeed Dr. Kellerman.

Belle Fourche

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